

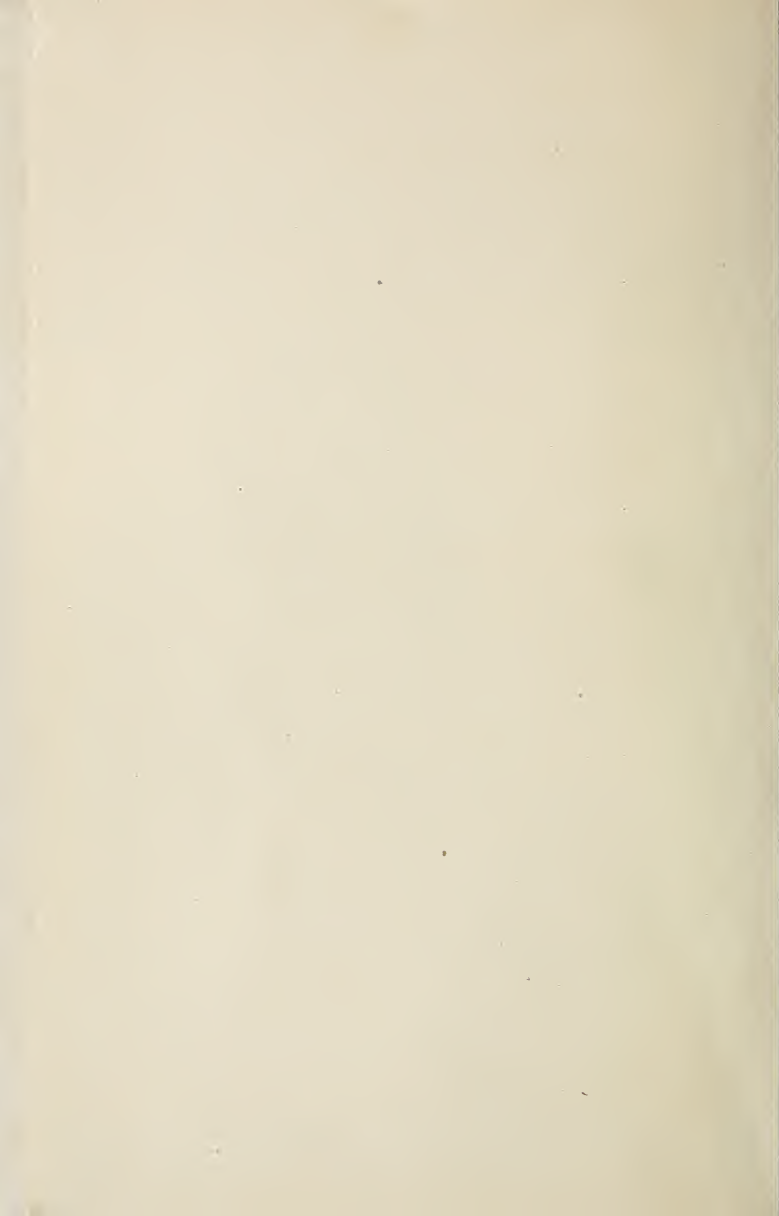




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IS MAN IMMORTAL?

AND

GOD IN NATURE.

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BY REV. W. C. BLACK, D.D.

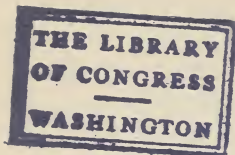
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WITH AN INTRODUCTION BY  
BISHOP C. B. GALLOWAY.

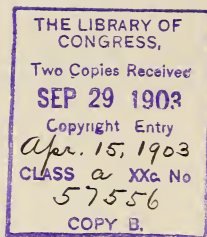
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## Introduction.

THE substance of the following pages, in the form of popular lectures, has been delivered before large and delighted audiences. Into various parts of the country the author has gone in response to urgent and repeated invitations, and everywhere commanded a most appreciative hearing. Though frequently solicited to publish these lectures in a volume and give them a wider circulation, not until now has he consented to do so.

Slightly changed in form, they are herein sent forth on a mission of mental and spiritual awakening. The value of these pages will be found in the easy translation of profound scientific truth into the

language of the common people. Facts of ready discernment are not obscured by technical terms. The author has not attempted exhaustive treatment. His earnest purpose has been to provoke thought and make attractive further investigation. If any reader is thus helped to a wider vision and a larger hope, the volume will become an evangel.

CHARLES B. GALLOWAY.

Jackson, Miss., April 11, 1903.

## Preface.

THESE discourses are an outgrowth of pastoral life. The associations of the pastorate having brought the author in contact with a good deal of honest skepticism, these lectures came into existence as an antidote thereto. The author has never been a professional lecturer. He has given to lecturing only such fragments of time as he could spare from the labors of the pastorate or the tripod. Hundreds of invitations to lecture have been declined, though their acceptance would have been remunerative.

The first lecture, "Is Man Immortal?" has been delivered more than a hundred and twenty times, and in nine different States. It was

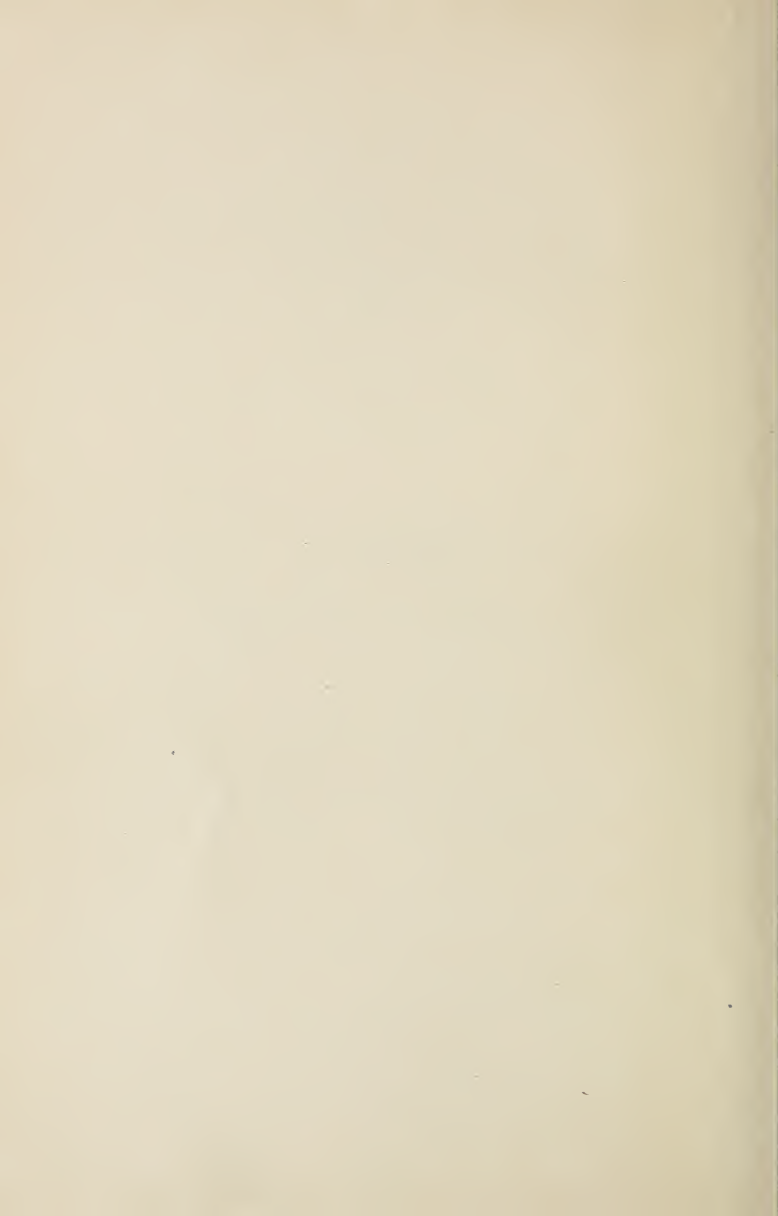
delivered by special request before two different sessions of the Mississippi Legislature, and also before the Mississippi Constitutional Convention of 1890. It is here presented in the exact form of its oral delivery, with the exception indicated on page ten.

The other lecture, "God in Nature," has also had a wide range of delivery, though not always in the exact form in which it is here presented. In oral delivery the part relative to "the microcosm" has been usually omitted in order to bring the lecture within conventional time limits.      W. C. BLACK.

PART I.

IS MAN IMMORTAL?

(7)





## IS MAN IMMORTAL?

WHEN I die, when my body shall have been committed to mother earth, will my existence then have terminated forever? or is death only the gateway to a life that is endless? Can any question within the whole vast range of thought possess a more thrilling interest for every one who is worthy of the name of man than this? This question I shall answer in the affirmative, and give what I conceive to be valid reasons for the faith that is in me.

As a foundation for an argument on the subject, I lay down three propositions which I hold

that every reasonable man must accept, whatever may be his views concerning various other questions that lie within the domain of theology or philosophy.

My first proposition is this:  
There is a God.\*

My next proposition is this:  
God is infinitely wise. This proposition is really implied in the preceding one. All the arguments which prove the existence of a God prove him to be a being of infinite wisdom. Indeed, it would be impossible to conceive of a greater solecism than is in-

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\* In presenting this lecture to an audience it has been my custom to introduce just here a brief epitome of the argument in the second lecture in this book, "God in Nature."

volved in the expression “an unwise God.” The two terms are absolutely incompatible. There would be as much propriety in speaking of a dark light, a true falsehood, a virtuous vice, or an honest thief as in speaking of an unwise God.

My third proposition is this: Man is dual in his nature. I hold it to be incontrovertible that within this physical organism there dwells an invisible, intangible, immaterial something which thinks and feels and wills—that something which we call the mind, or soul. I am not unaware of the fact that the blatant materialism of the present day seeks to make it appear that we have no positive proof of the existence of

mind as a separate and independent entity. The materialist says: "We know that matter exists; but we only infer the existence of mind." Now, he who uses such language is either an ignoramus, or else he is trying to perpetrate a fraud upon the unwary. We have precisely the same kind of proof of the existence of mind that we have of the existence of matter. How do we know that matter exists? No scientist will claim that he has ever cognized matter as to its essence. It is true that latter-day scientists talk very learnedly about atoms as the basis of the material universe; but no scientist will claim that he has ever seen one of these atoms. Nay, though he has

sought for them with the aid of microscope, crucible, and retort, he has never been able to discover them. How, then, do we know that matter exists? It is purely a matter of inference. We know that there are certain properties, such as extension, shape, color, hardness, inertia, etc., and we infer that there is some substance in which these properties inhere. Precisely in the same way do we ascertain the existence of mind. It is just as certain that there are such things as thought, memory, consciousness, sensibility, and volition as that there are such properties as size, shape, hardness, etc. Now, just as we infer that there must be a material substance in which these

material properties inhere, just so we infer that there must be a mental substance in which these mental properties inhere. The logical process is the same in both cases. It is just as certain that mind exists as that matter exists. Indeed, it is more certain; for we can learn of matter only through mind. Deny the existence of mind, and you make it impossible to prove that matter or anything else exists. If I were compelled to choose between materialism and idealism, I would unhesitatingly choose the latter. It would be a thousand times easier to convince me that neither sun, moon, nor stars, nor any other material thing exists, than to convince me of the falsity of

the dicta of my consciousness. I can listen with some grace to him who would rob me of my faith in the existence of the material universe; but no sort of toleration can I have for him who would have me doubt the reality of my own mental existence. If I know anything at all, I know that I live, and that I exercise thought, memory, sensibility, and volition.

There lies a man who has just met a violent death. His eye is as perfect as ever it was, yet there is no vision. Why is there no vision? On materialistic principles, it is impossible to tell. Dualism, however, replies: "There is no vision for the reason that the spirit has gone to the

God who gave it." The eye has no more power to see than a telescope. It is merely the instrument through which the soul looks. The ear has no more power to hear than a trumpet. It is the soul that hears through the ear. The body is not the man; it is only the box of tools he works with. Man has a body. Man is soul. This is the bed rock of human ontology.

Bear in mind, then, these three propositions: (1) There is a God. (2) God is infinitely wise. (3) Man is dual in his nature; in other words, the human soul is a real entity, an immaterial substance. These propositions I hold that every reasonable man must accept, whatever may be his



views concerning various other questions, scientific, metaphysical, or theological. These propositions constitute the foundation on which I shall build. They are implied in all I shall say.

In the next place, I announce this as a proposition which cannot be controverted: There is no such thing as annihilation in the material universe. To illustrate: We lay a stick of wood upon the fire. In a little while it is consumed, and we say in common parlance that it is destroyed; but no one supposes that it is destroyed in the sense of being annihilated. Every schoolboy at the present day knows that it is not destroyed in this sense. Gather together the ashes, the soot, the smoke,

the carbonic dioxide, and all the other gases generated in the process of combustion, and weigh them all, and they will weigh precisely the same as did the original stick of timber. This has been demonstrated in the laboratory of the chemist ten thousand times. Every particle of the matter that composed the stick of timber is still in existence somewhere, in some form. Combustion does not produce annihilation. The same is true of that slower process of combustion ordinarily called decay. There stands the lordly oak, towering above the neighboring trees like a Saul above his brethren. Suddenly it yields to the fury of the storm king and falls to the

ground. When a few years have passed away, it is gone, it no longer exists as a tree or a log; and we speak of it as being destroyed. But no one supposes that it has been annihilated. Every particle of matter that composed that tree when it stood in all its pride as the monarch of the forest is still in existence somewhere, in some form. Under the influence of well-known natural laws, the tree has been decomposed, resolved into its original elements. These elements have entered into various new combinations. Some of them have mingled with the soil, giving it increased fertility, and have been taken up by trees, grasses, and other plants through their

roots. Others have floated out into the atmosphere in the shape of gases of various kinds, and have thus been inhaled by men and animals through their lungs, or by plants through their leaves. Thus the atoms which once composed the stately oak may now form a part of the bodies of men or animals. They may have entered into ten thousand new combinations, but amid all these multitudinous mutations and transformations there is no annihilation. Not one atom of matter has been destroyed. And this is true not only in combustion and decay, but in all the countless myriads of mutations and transformations that are incessantly being wrought out before our

eyes in the great laboratory of nature. Amid all the countless, inconceivable millions of changes in the forms of matter, there has never been from the creation till now one single instance of annihilation. Every particle of matter that sprang into being when the fiat of creation went forth from the lips of Omnipotence is still in existence somewhere, in some form. This is a scientific truth now universally admitted. Well, if there has been no annihilation in the past, who has the right to assert that such a phenomenon will ever occur in the future? Nature's laws are as unchanging as the divine existence. Hence, since these laws have never produced a single instance of

annihilation in the past, we have no right, from a scientific standpoint, to suppose that they will ever do so in the future.

Just here some one may raise the inquiry, “Does not the Bible teach that there is a time coming when the world will be burned up?” In the first place, I doubt whether the Bible teaches this. Certainly such phraseology can be found in Scripture; but I incline to the opinion that it is descriptive of moral and spiritual, not physical, changes. Suppose, however, we admit, for the sake of argument, that such language is descriptive of physical changes. Suppose that after a time the Creator, by touching some secret spring of nature’s forces,

should extract the nitrogen from the air, thus leaving the undiluted oxygen to set the world on fire; or suppose that the terrific fires that rage beneath every square foot of the earth's surface should burst forth in ten thousand volcanic eruptions; suppose that in either of these ways, or in some other way, a mighty conflagration should sweep over the entire earth, consuming everything on its surface, and even fusing the great globe itself: what of it? Have I not shown that combustion does not mean annihilation? If the world should be burned up, it would no more be destroyed than a lump of coal is destroyed when it is consumed in the grate. Every particle of

matter that composed the earth in its pristine beauty would still exist in some form; and all we know of the plans and purposes of Deity points to the conclusion that the earth would come forth from this mighty conflagration as much more beautiful than it now is as the full-blown rose is more beautiful than its parent germ, or the butterfly than the chrysalis from which it sprang.

So, then, no man has a right to assert that a single atom of matter will ever be blotted out of existence. Neither science nor revelation knows anything of annihilation, either as a past experience or a future possibility. When the fiat of creation went forth from the lips of Omnipot-



tence, it went forth for eternity. Not one atom of matter was brought into existence only to be blotted out again.

My next proposition is this: Mind is infinitely superior to matter. This proposition needs no argument to support it. You can scarcely offer a man a greater indignity than to ask him which he considers of greater value, his mind, or a stone, or clod, or even a planet. Every man feels instinctively that that mind within him which thinks and feels and wills is worth more than ten thousand worlds of dead, inert matter. Matter which can only act as it is acted upon by some extraneous force is utterly unworthy to be compared with mind,

which is self-active, which can originate thought and exercise sensibility and volition. Now, put these two propositions together—that there is no such thing as annihilation in the material universe, and that mind is infinitely superior to matter—and what follows? If an all-wise God reigns supreme over the universe, does it not necessarily follow that man must live beyond the grave? Who can believe that under the administration of an all-wise God matter is perpetuated forever; while mind, which is infinitely superior to matter, has but a momentary existence? Look at the position of the skeptic, will you? He believes that God watches over matter with unceasing care,

so that not one atom of matter has ever been destroyed during all the countless cycles that have intervened since creation's morn; and yet he believes that God brings mind into existence only to blot it out after a brief period of three-score years and ten or less. The bodies of all the sages of antiquity have been preserved, while their souls have perished. The particles of carbon, hydrogen, nitrogen, iron, sulphur, etc., that once composed the bodies of Adam, Moses, David, Isaiah, Paul, Plato, Socrates, Zoroaster, etc.—all these particles of inert matter have been preserved; but the glorious minds that once tenanted those bodies were long since annihilated. And this proc-

ess is still going on. The great Author of nature is still blotting out human souls at the rate of more than fifty a minute, while at the same time he preserves every atom of matter throughout eternity. Can you believe this? Suppose a human being were thus to act. Suppose a man were to come into possession of a thousand diamonds, each one of as great value as that costliest jewel that bedecks the brow of England's great king, a jewel said to be worth several millions of dollars; suppose each of these jewels is contained in a little earthen casket worth about as much as an ordinary clay pipe; suppose he takes these jewels to the seashore, and from some beetling cliff hurls

them one by one into the profoundest depths of the ocean, where they are forever annihilated, so far as any use he can make of them is concerned; and yet suppose he takes these little earthen caskets, whose only value is that they are fitted to contain the gems, carries them home, preserves them with the greatest care while he lives, and leaves them as an inalienable inheritance in his family when he is dead. What would be thought of such a man? Would he not be universally regarded as a lunatic? And yet such a man would be vastly wiser than the God of the universe is, if it be true that the soul ceases to exist at death. If skepticism be true, then the God of the uni-

verse blots out of existence that priceless jewel, the human soul, while at the same time he preserves through endless ages the poor, worthless earthen casket, whose only value is that it is fitted to be the temporary receptacle of the soul. Carbon, hydrogen, iron, sulphur, and other forms of matter are preserved forever; while thought, affection, and holy aspiration perish after a period whose brevity is aptly symbolized by the ephemeral glare of the meteor or the short-lived existence of the bubble which bursts in mid-air ere you have time to admire its gorgeous tints. Is this the God you worship, O skeptic? If so, then worship him to your heart's content; but as for me, I

would rather bow the knee to Baal, or worship Juggernaut or Aaron's golden calf, than such a God. The God I worship is a being of infinite wisdom; and the fact that he does preserve matter through endless ages is, to me, an all-sufficient proof that he will also preserve mind, which is infinitely superior to matter.

Another argument I wish to present. This argument I can perhaps best introduce by the aid of an illustration. We see a fish. We notice that it has no wings and no feet, but that it has fins. We therefore infer that it is not the intent of nature that the fish shall walk on *terra firma* or fly through the air, but that it shall find a home in the rolling deep.

This is reasoning which would be agreed to by all men, the unlearned as well as the learned, the savage as well as the civilized man. Now, what is the abstract principle here involved? Why, this: that capability indicates destiny. The fish has fins—that is, capability of swimming; we therefore infer that it is the intent of nature that it shall swim. In other words, we believe that every power is intended not to lie dormant but to be exercised. Of course this principle applies to man no less than to fish, bird, or quadruped.

Let us, then, apply this principle to man. Let us see what man's capabilities are, and thus ascertain what his destiny must



be. But, as it will be impossible, within the limits which the proprieties of the occasion allow, to consider all the capabilities of the human race, we shall confine our attention to one single capability—viz., that of acquiring knowledge. Any one of several others would serve our purpose as well; but, as we must make a selection, we choose this one. The capacity of the human mind for the acquisition of knowledge is one of the greatest wonders of the world. Think what man's achievements have been in this direction. When man became a denizen of this planet, he had very little knowledge. He knew almost nothing concerning the nature or properties of even

the most common objects, and hence was unable to utilize them for his comfort and convenience. He had not a chair upon which to sit, a knife with which to cut his food, a bed upon which to recline his weary limbs, or even a roof to shelter him from the storms. In short, he was ignorant of all the arts and destitute of all the implements of civilized life. Contrast that condition with his present state. How vast the change! How wonderful have been his acquisitions of knowledge, and how marvelously have these been made to contribute to his happiness! Almost every addition to his stock of knowledge has been made the means of elevating himself to a higher plane

of civilization. Think of his dominion over the three great kingdoms of nature—the animal, vegetable, and mineral kingdoms—and of the ten thousand ways in which these are made tributary to his happiness. How many animals are his servants, and in how many ways do they minister to him? Deprived of all animal products, of all uses of the animal kingdom, how far would man be to-day above a state of savagery? And who can enumerate the myriad utilities of the vegetable kingdom? In architecture, in the manufacture of clothing, in the practice of the healing art, in the construction of the various implements he uses, and in a thousand other ways the vegetable kingdom

contributes immeasurably to human advancement. Think also of the mineral kingdom; consider the various metal and mineral substances, and their compounds and combinations. Who can measure their utilities? Gold, silver, iron, copper, lead, tin, coal, glass, petroleum—I hazard nothing in saying that without these civilization as it now exists would be an impossibility. Now, all the multifarious objects that compose the three great kingdoms of nature are of use to man only as he makes them so, only because he has a mind that is capable of studying the nature and properties of each particular substance, and thus ascertaining how it can be made subservient to his inter-

ests. To convert the rough, hairy skin of an animal into the soft, beautiful leather that covers hands, feet, or books; to transform the tangled fiber of the cotton plant into the thousand beautiful clothing fabrics of the present day; to construct all the various implements known to civilization, from the brass pin and the horn button to the improved reaper and the sewing machine; to gather trees from the forest, iron from the mine, stones from the mountain, and to fashion these into such an assemblage of splendid edifices as can be seen in any of our great metropolitan cities—these and all such achievements evince a power of mental acquisition that is absolutely marvel-

ous. Walk through earth's dwellings, earth's factories, earth's warehouses, earth's commercial marts, take a minute survey of all you see, and then tell me how many of these things were known to primeval man. The answer is: Not one. They are all the result of knowledge acquired by laborious experiment and patient research continued from age to age.

Now, this power to extort from nature her secrets and utilize them for self-exaltation is one of the chief characteristics that differentiate the human from the brute creation. When the brute mind utilizes nature, it does so instinctively, blindly, and it makes no progress in this direction.

The bee constructs the cell of her honeycomb now precisely as she did three thousand years ago when she hid her stores of sweetness in the carcass of Samson's lion. The spider spins her web now precisely as she did five thousand years ago when she found a temporary dwelling place in the corners of Noah's ark. And as with spider and bee, so with all other forms of brute life. Except within certain narrow and well-defined limits, the brute mind is absolutely nonprogressive. Man, however, is constantly advancing in knowledge, constantly ascertaining new facts concerning the multitudinous objects that environ him and using these facts as a leverage to ele-

vate himself to a higher plane of civilization. To the brute mind oceans of oil, mountains of iron, and vast caverns filled with gems and gold are of no more value than the roughest pebbles underneath their feet. They are of value to man only because he has a mind that is capable of studying the nature and the properties of all the multitudinous objects that environ him, and thus ascertaining how they may be made tributary to his happiness. All the implements known to civilization, and all the marvelous results achieved through their instrumentality, are only so many evidences of the marvelous capacities of the human mind for the acquisition of knowledge.



And not only does man thus utilize nature in her grosser forms; he also lays his hand upon her secret forces, and makes them do his bidding. With reason's eye he beholds steam, the vapor of water, invisible though it is to his natural organs of vision, as it rises from earth and plumes its wings for a lofty aërial flight, lays his hand upon it, imprisons it in an iron dungeon, and compels it, an unwilling, struggling captive, to put forth efforts and achieve results, in comparison with which the most colossal productions of human handicraft dwindle into absolute insignificance. Yes, the twentieth century man evokes from "the old oaken bucket that hangs

in the well'' a spirit whose daily doings far eclipse the most marvelous performances of even the gods of the olden time. He catches the sunbeam as it rushes by with lightninglike velocity, and compels it to photograph his image upon glass, or metal, or paper, and thus give immortality to his features. He takes a sooty lump of coal from the grate, transforms it into a substance as light and as invisible as air, and makes that gaseous substance answer as a substitute for sunshine. He constructs an instrument, the telephone, by means of which he is able to carry on an oral conversation with a person hundreds of miles away. He constructs another instrument, the phono-

graph, by means of which he garners up his vocal utterances and transmits them to unborn generations, so that a thousand years after his funeral anthem shall have been sung his posterity may reproduce not only his words, but the very intonations of his voice. He catches the lightning as it plays upon the bosom of the storm cloud, brings it down to earth, arrays it in the livery of servitude, and sends it almost with the velocity of thought across continents and oceans, so that we here in the heart of this new world may know what transpired only a few moments since in the palace of the Czar of all the Russias or in the streets of the ancient and far-

famed city on the banks of the Tiber.

And not only does he thus subjugate nature in her subtler forms, and compel her to minister to his happiness; he also possesses the higher power of reading the thoughts and comprehending the plans of the Creator, as they are embodied in the great world of nature. All the multitudinous objects that compose the fauna and the flora of the earth have been examined with minute care and classified according to structural and functional peculiarities; and thus the entire animal and vegetable kingdoms, in all their vast variety and wonderful extent, lie mapped out before man's mental vision exactly

as they existed in the mind of the Creator long ages before the foundations of the earth were laid. His conquests within the domain of the chemical science have been equally wonderful. All the multitudinous objects that make up the great world of nature around us have been catechised with the aid of microscope, crucible, and retort and forced to reveal their chemical composition and the entire story of their birth. The food we eat, the water we drink, the air we breathe, the clothes we wear, the bones and muscles of our bodies, the rocks and soil that compose the crust of the globe; in short, all things, animate and inanimate, on the face of the earth,

have been analyzed, and the wonderful fact has been revealed that all these are composed of a very few elementary substances. There are only about seventy elements in all, and of these less than half a score make up the great bulk of all we see. And not only the elements themselves, but also the proportions in which they unite and the laws that regulate their multifarious combinations, have been discovered. Thus man has comprehended the plan on which the whole fabric of nature, organic and inorganic, has been erected.

And not only does he thus read the thoughts and comprehend the plans of the Creator as they are displayed in the visible

world around us, but with sublime audacity he also resolves to explore worlds that God has hidden from him. He says to himself: "I believe that God has hidden a great, beautiful, interesting world from me by giving me eyes that are imperfect;" and so he resolves to improve his eyesight. He constructs a microscope, and, sure enough, there is a hidden universe—great, beautiful, glorious to behold. The revelations of the microscope are wonderful. One single drop of water from a stagnant pool contains, not thousands only, but millions of living creatures, each endowed with organs of digestion, organs of respiration, organs of locomotion, and all the

other organs necessary to life and happiness. All the visible animals that live on land and in the sea are utterly insignificant in number when compared with the denizens of the microscopic world. The microscopic animalculæ that inhabit a single cubic mile of water taken from some parts of the ocean far exceed in number the entire visible population of the earth, both brute and human.

And not only has he discovered this hidden world; he has also explored it. He has examined with minute care its various forms of life as to anatomical structure and functional peculiarities, and thus classified them exactly as they are classified in



the mind of the Creator himself.

Again, he turns his eye upward, and says: "I believe there is another great universe up there that God has hidden from me by putting a veil over my eyes, and I intend to rend that veil asunder." So he gathers a small quantity of sand from the beach, mingles with it an alkali of some sort, and applies to the mixture the heat of a furnace; and there comes out glass clear as crystal. He breaks the glass into fragments, and shapes these fragments into a telescope. He points the telescope to the sky, and instantly in the joy of his heart he cries out: "Eureka, eureka! I have found it. I have

found the great universe which God had hidden from me.” Those who have never employed telescopic aid in contemplating the diamond-studded dome above can have no conception of the enrapturing splendors that burst upon the vision as the fire-clad hosts by millions go trooping across the sky. In a little patch of sky where with the naked eye only a very few stars can be seen, bring the telescope to your aid, and multiplied thousands of blazing worlds of light are brought into view. The number of stars brought to light by the powerful telescopes of the present day is so great that an exact enumeration of them is impossible. Nothing more than an approximate

estimate has ever been attempted.

But he is not yet content. He resolves that he will not only discover this hidden universe, but that he will also explore it. So on reason's wing he soars aloft, visits these far-off worlds, and weighs and measures them. How wonderful! It used to be thought a marvelous exploit for even a God to "weigh the hills in a scale and the mountains in a balance." The twentieth century man esteems it a very trivial task to weigh great worlds a thousand times larger than the globe upon which we dwell. He also measures their distances from the earth and from each other, and ascertains the laws that

govern them in their everlasting flight.

And not even yet does he pause in his wonderful search into the arcana of nature. Not content with having discovered and explored and weighed and measured millions of great worlds that God has hidden from him, with sublime audacity he resolves that he will analyze these distant worlds, that he will ascertain the stuff they are made of. So he constructs the spectroscope, and with its aid the marvelous task is accomplished. Isn't it amazing that a poor worm of the dust, groveling on the surface of this insignificant little planet, should know with absolute certainty that iron, sodium, and other mundane ele-

ments exist in the sun and in those distant stars which the telescope brings to view?

Nor does he stop with even this sublime achievement. Not satisfied with having annihilated space and explored and analyzed myriads of hidden worlds, he also resolves that time shall no longer be a barrier in the way of his acquisition of knowledge. In other words, he resolves that he will unlock the vast treasure-house of the past and bring forth its profoundest mysteries. So, gathering together the widely scattered leaves of nature's great volume of stone, he scrutinizes the strange hieroglyphic characters therein inscribed, deciphers them, and thus reads the history

of our earth for millions of ages before man himself was created.

How wonderful the mind that can thus gather wisdom from such vast regions of space and such an incomprehensible sweep of time! Think of all these achievements of which I have spoken (and remember that, so far from having exhausted the subject, I have only glanced at it here and there); I say, think of all these achievements, compare man as we now find him with man as he comes before us on the first page of authentic history, and then tell me, Do you know of anything more wonderful than the capacity of the human mind for the acquisition of knowledge?

And we must remember that

man's capacities in this direction are not by any means measured by his past achievements. Science is yet in its infancy. We have yet hardly mastered the alphabet of the great book of nature. Those who live upon the earth a thousand years from now will look upon us very much as we look upon the antediluvians; they will regard us as at least semibarbarians.

Moreover, it must be remembered that all the acquisitions of which I have spoken were made under conditions which wonderfully circumscribe the powers of the mind. Man in this world finds certain limitations placed upon his powers, which need to be removed in thought in order

to estimate his capacities. Let us consider these limitations for a moment. In the first place, about one-third of a man's life—about eight hours out of every twenty-four—must be spent in slumber to restore tired nature's energies. Then, under ordinary circumstances, another third must be given to some kind of toil, either mental or manual, to maintain a mere physical existence. Thus two-thirds of his life are consumed, and usually only a small part of the remaining third can be given to the acquisition of knowledge. A thousand circumstances necessitate the occupation of the mind with other matters, leaving only a very small fraction of his life that



can be devoted to the acquisition of knowledge. Add to this the limitations imposed by death. Just as a man is beginning to learn the alphabet of the great book of science, death claims him for its prey. When his successor comes upon the stage, he must begin the acquisition of knowledge, not where his predecessor left off, but where he began; and thus a very large part of every man's life is necessarily spent in simply going over again the ground trod by his predecessors, so that only a very small fragment of any man's life can be spent in extending the boundaries of knowledge.

Now, suppose all these limitations were removed; suppose it

were not necessary to sleep, not necessary to toil, so that the whole of life, and not a mere fragment of it, could be devoted to the acquisition of knowledge; suppose, furthermore, that it were not necessary to die; suppose that the first man and all his posterity could have lived on until now, devoting not a mere fragment but the whole of their time to the study of nature—how vastly greater would man's knowledge have been than it now is! In that case, human civilization would have been as much higher than it now is as our civilization is higher than that of the most barbarous tribes that swarm in the heart of the Dark Continent.

But there is still another limita-

tion that needs to be considered—namely, the limitation placed upon man's powers by the attraction of gravitation. Man in this life finds himself chained down to earth. Now, suppose all these limitations were removed, this necessity to sleep, this necessity to toil, this necessity to die; and suppose, also, that gravitation's cord were cut in twain, so that man could rise upon the pinions of an angel, and soar through space with the velocity of the lightning's flash, and continue his flight through myriads of ages—who, in that case, could set limits to his knowledge? Remember that this earth, great as it appears to us poor, puny mortals, is but one of a vast number of

worlds. The sun is more than a million times as large as the earth. Every star that gleams upon us from the nocturnal sky is either a world like our own, or else a sun, the center of a vast system of worlds, which are themselves invisible on account of their distance from us. The distance of the sun from the earth is so great that a railroad train traveling at the rate of five hundred miles a day could not reach it in less than five hundred years. The planet Neptune is thirty times farther still, so that it would take thirty times five hundred years, or fifteen thousand years, for our railroad train to traverse this distance. Neptune is the outermost planet belonging to

our solar system. Around the solar system in every direction lies a vast tract of empty space, no less than twenty trillions of miles in extent. Do you wish to know how long it would take for our railway train to cross this empty space and reach the nearest of the fixed stars? Well, the nearest fixed star is two hundred and twenty-six thousand times farther from us than the sun is. It would therefore take two hundred and twenty-six thousand times five hundred years—*i. e.*, one hundred and thirteen millions of years—to accomplish that journey. This is a period about twenty thousand times as long as that which has intervened since man was created. Perhaps it

will give a still more impressive idea of these distances to consider the time it takes for light to traverse them. The velocity of light is amazing. The distance from the earth to the sun, which a railroad train could not traverse in less than five hundred years, light traverses in less than eight minutes. Light travels so rapidly that it can flash from the north pole to the south pole and back again no less than fifteen times while your watch ticks once. Yet the nearest fixed star is so far away that its light, traveling with this amazing velocity, cannot reach the earth in less than three and a fourth years. Other stars are many times farther still.

And we have hitherto been

considering only the nearest stars, those that appear to our natural organs of vision every cloudless night. These, however, are utterly insignificant in number when compared with those which the telescope brings to view. Now some of these telescopic stars are so remote that their light reaches us only after a journey of thirty millions of years. Thirty millions of years, traveling all the while with a velocity about thirty million times as great as that of the railway train! What an idea does this give us of the vastness of space and of the grandeur of the empire over which Jehovah reigns supreme!

But we have not yet reached a stopping place. The first tele-

scopes that were constructed were of small magnifying power, and hence brought to light only a few worlds. Soon afterwards instruments of greater power were constructed, and these vastly increased the number of visible worlds. Since then improvement after improvement has been made in the telescope, and every successive augmentation of optical power has evoked from the viewless depths of space countless millions of flaming worlds unseen before. This being the case, astronomers believe that, if it were possible to construct a telescope having a magnifying power ten thousand times greater than that of any now in existence, the number of visible



worlds would be proportionately increased. What is a drop of water in comparison with the ocean, or a grain of sand in comparison with the earth? Yet ten thousand times smaller, perhaps, is that part of the universe that lies within the range of telescopic vision when compared with that part which lies in those far-off depths of space which no telescope has ever penetrated. Imagine yourself instantaneously transported by some mysterious power to a point far beyond the remotest star revealed by the most powerful telescope. Pause, and ask yourself: "What lies before me?" The answer is: "Space." Rise upon the pinions of an angel and travel with

the velocity of the lightning's flash, and continue your flight for more millions of ages than there are drops of water in the ocean; what lies before you? Space. Increase your speed a thousandfold, and go on and on and on for more millions of ages than there are atoms of matter in the whole visible universe; have you yet reached the boundaries of space? Why, you are no nearer than when you began your flight. Space is infinite. It is "a circle whose center is everywhere, and whose circumference is nowhere." So, then, there is room in space for more millions of worlds than our arithmetic can compute, or our finite imagination can conceive of.

And since every successive increase of telescopic power has revealed worlds unseen before, it is only reasonable to suppose that still greater telescopic power would bring into view multiplied millions more. Increase your speed ten thousand fold (remember that you are already traveling with a velocity a thousand times greater than that of the lightning's flash), and go on and on and on for more millions of ages than there are atoms of matter in the whole telescopic universe; would you be—I will not say beyond the boundaries of space, for, of course, you would not—but would you be beyond the boundaries of the material universe? Who will venture the rash as-

sertion? Doubtless you would still find yourself surrounded by countless millions of flaming worlds, stretching away in every direction beyond the reach of telescopic vision.

And each of these countless worlds doubtless affords as striking displays of the power and wisdom and goodness of God as does our own. The question is sometimes asked: Are other worlds than our own inhabited? In reply, I ask: Why were these worlds created which lie beyond our vision? Were they created simply to give light to our earth? One single one of them placed at a proper distance would give more light than the whole of them hid away in those far-off

depths of space. More than nine hundred and ninety-nine thousandths of the stars have never been seen from earth except by a handful of astronomers, with their sky-piercing telescopes. Were these created solely to give light to the earth? Suppose some man should gravely propose to light the streets of the city of San Francisco by building a huge fire upon the top of one of the peaks of the Alps? Would he not be regarded as a lunatic? How much wiser is the God of the universe, if he created the heavenly bodies simply to light up our terrestrial dwelling place? If wisdom is an attribute of Deity, then these telescopic stars were created for some other pur-

pose. What is that purpose? Did the Creator bring them into existence simply that he might amuse himself by watching their motions as a boy amuses himself with a top, kite, balloon, soap bubble, or skyrocket? Such a conception is beneath contempt. Why, then, were they created? I answer: All the analogies of nature, all the teachings of Scripture, all we know of the divine character and the principles of the divine government point to the conclusion that matter exists for the sake of mind, that worlds were as certainly created to be inhabited as acorns were intended to produce oaks. Of course there are worlds that are not now inhabited, and will

not be for ages to come, just as the earth was tenantless during untold ages of its earlier existence; but, like the earth, they are passing through a process of development which shall ultimately fit them to be the abodes of sentient life. There is, then, doubtless, as much to be learned in many other worlds as in our own.

Moreover, let us remember that when we study nature we are studying the handiwork of God, and that this is well-pleasing in his sight. Every object in nature, great and small, existed as a thought in the mind of Deity ages before it became an actuality in the universe. Each one of the ten thousand times

ten thousand flowers that bloom in earth's gardens and beautify earth's landscapes, and throw out their sweet, refreshing aroma upon the wings of the morning—each flower, I say, is but a thought of God, embalmed in matter, painted with the pencil of omnipotence and perfumed with the fragrance of heaven. Every stone and pebble and mineralogical specimen is but a crystallized thought of God. The beautiful, many-tinted robe of verdure that spring weaves to cover the nakedness of earth's continents and islands is but a conception of Deity materialized and painted with the colors of the rainbow that encircles the great white throne. All material



things, from the mightiest world that glows in the far-off depths of space down to the tiniest atom in the soil underneath our feet, are only the thoughts of the Most High embalmed in material forms for the delectation and spiritual elevation of his intelligent creatures. When we study nature, then, we are, to use the language of the immortal Kepler, "only rethinking the thoughts of God," and thus holding communion with the infinite mind that planned the universe.

Now, suppose all these limitations were removed—this necessity to sleep, this necessity to toil, this necessity to die—so that not a mere fraction but the whole of man's time could be devoted to

the acquisition of knowledge;  
and suppose that gravitation's  
cord were severed, so that man  
could take wings and soar

"From star to star,  
From world to luminous world as far  
As the universe spreads its flaming  
walls,"

with naught to do throughout  
eternity but to study everywhere  
the handiwork of God—who can  
say where man's knowledge  
would end? Doubtless he would  
after a time become vastly wiser  
than the loftiest archangel now  
is.

Remember that in all this sup-  
position which I have made I  
have added nothing to man's  
powers; I have simply taken  
man as he is, and have removed

these limitations from him, and sent him out to exercise his powers. And this supposition must be made. These limitations exist. If they did not exist, man's achievements would have been almost infinitely greater than they have been. I repeat that these limitations must be removed in thought in order that they may make a proper estimate of man's capacities.

Now, is it not reasonable to suppose that after awhile these limitations will be removed? We believe that the Creator is infinitely wise. Would an all-wise God create a being, give him such wonderful powers, and then limit these powers in such a way with no intention of ever remov-

ing these limitations? If man is to live for a few fleeting years, and then pass away and be no more, why give him these wonderful powers? Why not make him like the ox, which looks upon the myriad beauties of nature with no feelings of admiration and no aspirations after anything more than a sufficiency of food to satisfy hunger? Man has endowments and aspirations which he does not need merely as a denizen of this world. Why give him these lofty powers, and then place such limitations upon them? Is this Godlike? Suppose that a man were thus to act? Suppose one of New York's great millionaires should go out West and search until he finds on

the summit of a range of mountains near the Pacific coast a little pond at a point far from any railway or thoroughfare of travel, far from any city or village or habitation of civilized man; and suppose that there in that little pond he builds, at great expense, a ship perfect in all its appointments, and vastly larger than the Great Eastern? How would you regard such an act? However much you might admire the skill of the architect, and the beauty of the ship's adornments, you would pronounce it an act of folly to put such a ship in that place. You would say that if the man wanted a ship for use in the little pond he ought to have built a canoe, and that if he de-

sired to build a ship of such prodigious dimensions he ought to have put it not in a little pond, where there is no room for the play of its mighty machinery, but out upon the bosom of the ocean, where it could have been utilized for the purposes of commerce, where it could have contributed its quota to the wants of civilized man. Now, is God less wise than man? Precisely so, if skepticism be true. If there is no life beyond the grave, then the God of the universe has built the Great Eastern and put it in a pond. He has made man and given him all those marvelous powers of which I have spoken, and then placed upon these powers such limitations that they can

never be adequately exercised. Man, amid the environments of this life, chained down to earth, toiling, suffering, dying, is as completely "cribbed, cabined, and confined" as the Great Eastern would be in a pond.

But suppose that about the time we have grown hoarse laughing over the supposed folly of our great millionaire he gravely informs us that he has constructed a great ship railway, similar to that which Eads projected across the American isthmus; and suppose that we stand by and see that mighty ship, by the aid of well-devised machinery, lifted from the little pond, moved along the iron track, and floated out upon the

bosom of the ocean; then where would be the folly? Now, this exactly illustrates the ways of Providence. God has put the Great Eastern—the human soul—in a pond, but he has also constructed a great ship railway, called the railway of death, by means of which he expects after a time to lift this mighty ship from the diminutive pond of time, and float it out upon the vast and boundless ocean of eternity.

Take another illustration. You are traveling through a forest, when you come upon the nest of a bird. In the nest you find a diminutive egg. Taking the egg in your hand, you notice in one place a small aperture, betoken-



ing the fact that the period of incubation has passed—that the egg is just ready to hatch. You break the shell, and in it you find a living bird. Just then some one approaches you and says: “You ought not to have broken that shell. It was not the intent of nature that the shell should ever be broken.” What would be your reply? You would say: “That cannot be. The bird has wings, and those wings are wondrously adapted to locomotion through the air. It has eyes, and there is a marvelous correlation between those organs of vision and God’s golden sunlight. It has lungs, and there is a wondrous correlation between those organs of respiration and

the balmy, life-giving air. It has feet, and they seem made for walking or perching. It has a beak, a stomach, and various organs that may be eminently serviceable to it out of the shell, but are wholly useless in the shell. Thus its whole anatomical structure proclaims the fact that it was not the intent of nature that it should remain shut up in its tiny shell. If this had been the intent of nature, its organism would not have been so complex; it would have been built on the plan of the oyster, without feathers, wings, feet, or eyes. Those wings were not made to lie forever folded, but to be exercised in darting through the air. Those eyes were not made to be forever

curtained in darkness, but to be exercised in gazing upon the myriad beauties of nature. Those feet were not made to be a mere useless appendage to a shell-imprisoned creature, but to be exercised in walking upon *terra firma*, or perching upon twig or bough. Every part of its anatomical structure proclaims the fact that it was not the intent of nature that it should remain caged in that little, dark prison house, but that after a time the shell should be broken, and the eye opened, and the lungs inflated, and the wings expanded, and a new and a higher life entered upon." Now, what is the abstract principle here brought to light? Simply this, that every

power is intended not to lie dormant but to be exercised. If any power lies dormant for a time, it is only for a time, only during an embryo life that is indubitably prophetic of a higher life. Capability indicates destiny. That this principle applies to man as well as to the lower animals, no sane man will question. We have already seen that man has powers that can never be adequately exercised in this present life. Man in this life is as completely an embryo as is the unhatched bird. What then is the conclusion which reason forces upon us as regards his destiny? Certainly nothing less than this, that the embryo life is intended to culminate in a higher

life. So, then, every part of man's mental constitution, every power of intellect and conscience and heart, proclaims the fact that he was made for a nobler existence than is possible to him amid the environments of the present life; that it is the intent of nature—or rather, I should say, of nature's God—that after a time the earthen shell that shuts him up in the little, dark prison house of this terrestrial life shall be broken, and the spirit eye opened, and the spirit wing expanded, and a new and higher life entered upon.

Away, then, with your heathenish ideas of death! What is the popular conception of death as embalmed in earth's literature?

Is it not usually described as an unmitigated evil, the direst calamity that ever befell our race? The entire vocabulary of all earth's babbling tongues has been ransacked in order to find epithets sufficiently strong to express our utter abhorrence of this most dreaded of all human experiences. Imagination, with all her Godlike powers, has been wearied to exhaustion in searching for imagery adequate to represent the gloom of the grave. And with this conception our actions correspond. When death invades the family circle, and lays his icy fingers upon those we love, and bears them from our presence, we bow our heads like bulrushes, we array

ourselves in the somber habiliments of mourning, we walk with funeral tread and speak in sepulchral tones, we banish smiles from our faces and joy from our hearts and homes. In short, we speak and act precisely as we would do

“If all our hopes and all our fears  
Were prisoned in life's narrow bounds;  
If, travelers through this vale of tears,  
We saw no better world beyond.”

Amazing folly! What we commit to the tomb is not the friend we love; it is only the house he used to live in. That friend, in all that constitutes his essential personality, still lives; and, whatever it may be to others, to the good man death is not in any sense of the word a calamity,

and we ought never so to regard it. We should never conceive of death as a vast subterranean prison house, within whose gloomy dungeons the souls of men are shut up forever; we should rather regard it as the vestibule of a celestial temple that is infinitely spacious and transcendently glorious. Death is not the dark, lowering cloud whose muttering thunders portend a coming storm that shall spread devastation and ruin in its track; it is rather the many-colored bow of promise that spans the heavens, a thing of beauty, a herald of coming benefactions, and a token of divine good will. Death, the king of terrors, as he is to a large part of our race, is



not the monster that he seems—  
Death, the huge black-winged  
angel who has been for six  
thousand years perpetually hov-  
ering over our earth, casting  
his dark shadows athwart every  
pathway and across every house-  
hold and into every heart—  
Death, terror-striking as is his  
visage, has one office to perform  
for our race, and one only—viz.,  
to break the shell that shuts us up  
in the little, dark prison house of  
this earthly life, and allow the  
soul to unfold its golden pinions  
and soar aloft to those celestial  
heights where the omnipotent  
One unveils his face and un-  
folds his glories to the adoring  
gaze of the hierarchies of the  
upper sky. And in that glorious

future life, to whatever spot the soul shall wend its way, it shall continually behold new manifestations of the power and the wisdom and the goodness and the love of God; and when ten thousand times ten million ages shall have passed away in this delightful employ, if a doubt should arise, and the soul should address its Maker, and say, "O, thou great Father of all, will my existence ever terminate?" Then from the shekinah splendors that beam upon the mercy seat and illuminate the holy of holies of the universe, there would come a voice, louder than the blast of the archangel's resurrection trumpet, louder than the reverberating roll of ten thou-

sand judgment day thunders, proclaiming these words: "Hear, O heavens, and give ear, O earth, the soul of man is as immortal as its sire. It shall never die, never, until hell shall hold a jubilee, and the angels sing a funeral anthem over the grave of God."

Let us, then, when we think of the departed, do so not in the strain of the infidel when he tells us that "it is all of life to live and all of death to die," but rather in the strain of the poet when she sings:

Over the river they beckon to me,  
Loved ones that have crossed to the  
farther side;  
The gleam of their snowy robes I see,  
But their voices are lost in the dash-  
ing tide.

And I sit and think as the sunset's gold  
Is flushing river and hill and shore,  
I shall one day stand by the waters cold,  
And list for the sound of the boat-  
man's oar.

I shall watch for a gleam of the glisten-  
ing sail,  
I shall hear the boat as it gains the  
strand,  
I shall pass from sight with the boatman  
pale,  
To the better shore of the spirit land;  
I shall know the loved who have gone  
before,  
And joyfully sweet will the meeting be,  
When over the river, the peaceful river,  
The angel of death shall carry me.

PART II.

GOD IN NATURE.

(93)

## Note.

THE reader will find in this lecture several pages that are also contained in the previous lecture, "Is Man Immortal?" This need not be wondered at when it is remembered that this book is simply a collection of independent lectures. The author prefers to give both lectures as delivered rather than to mar either by a hurtful omission.

## GOD IN NATURE.

WHENCE came man? It is certain that man has not always existed. The time was when philosophers were silly enough to talk about an eternal succession of men, animals, etc., but that time has forever passed away. Geology has demonstrated the fact that man had a beginning. Whence, then, came the first man? "O," says one, "man was developed from an ape, and that from some lower form of life, and that from some form lower still, and so on."

Now, suppose we grant that this is true. Of course we do not grant it as a matter of fact,

for evolution in this form rests upon the dogma of the transmutation of species, and this is a sheer hypothesis unsupported by a single scintilla of scientific evidence. But though we do not admit it as a matter of fact, suppose we grant for the sake of argument that this evolution theory is true. What then? Are we any nearer a solution of the problem than we were before? Let us see.

Let us trace man's genealogy back through every imaginable link until we reach the primitive form of animal life, the first diminutive protozoan that disported itself in the waters of earth's primeval ocean. This protozoan, we will suppose, is a lump of jelly smaller than a mustard seed,



having no head, no hands, no feet, no wings, no eyes, no ears, no stomach, no organs of any kind. It is simply a very small, almost shapeless, lump of jelly, alive and capable of certain motions.

We have traced man's genealogy back, we will say, to this ignoble ancestry. But the question with which we started out still confronts us. Whence the protozoan? There is still a vast chasm intervening between even that lowest form of life and non-living matter, and this chasm science is unable to bridge. The origination of life in any form is an achievement impossible to man. It would be as easy for the scientist to create a solar sys-

tem and people it with archangels as to produce a monad or even a single particle of living bioplasm. And not only is it true that man cannot produce animal life, but it is equally true that he cannot account for its production. Spontaneous generation is only an atheistic dream.

Wherein, then, has evolution aided us? On scientific principles we are utterly unable to account for the protozoan, even if it were nothing more than a protozoan. But, if we accept the evolution hypothesis, what we then have to account for is not simply a protozoan, but a protozoan that has in it all the capabilities of the *genus homo*. "Involvement must always equal evo-

lution.” You cannot get out of a thing that which has not been put into it. If our protozoan is to develop into man, then we must put into it all the mighty possibilities that belong to human nature. Now, a protozoan that shall develop into man is as difficult to account for as is man himself. Hence, the evolution hypothesis has not aided us in the least. The question with which we began still confronts us in undiminished mystery, “Whence came the first man”—man in embryo, if we will have it so?

To this question materialism makes reply after this fashion: “O! there is no mystery about it. The universe is the necessary product of natural causes.

The great forces of nature—light, heat, magnetism, electricity, gravitation, etc.—operating upon a universe of chaotic matter, have produced all the worlds and all the multitudinous forms of life that inhabit them, man included.”

Thus we are asked to believe that the whole fabric of nature is the product of forces impersonal and unintelligent.

This proposition we controvert. We affirm that nature furnishes incontrovertible evidence of design. Now, how is the point at issue to be decided? How are we to know whether the order apparent in nature is designed order? Manifestly, the question must be decided in precisely the same way that we

would decide the same question in regard to any other object. How, then, do we decide whether any object is the product of intelligence?

Just here we reach the very boundary lines of psychological investigation. The intellectual process here involved is one that defies analysis. The ultimatum is a state of absolute certitude, but how that state is reached who will undertake to tell? To illustrate: Suppose some one should point to a spacious and elegant church edifice, and say: "How do you know that that structure is a contrivance?" Suppose he reasons thus: "I know that this building is beautifully adapted to the purpose which it now serves.

Roof, floor, doors, windows, rostrum, pews, and aisles are all nicely adjusted to the wants of those who here assemble. But how do you know that it was planned by an intelligent mind? May it not be a product of mere natural forces? May not man have found the house just as it is and simply appropriated it to his own uses?" Now, how can this question be answered? How can we prove that the stately church edifice is a contrivance? Of course, if we saw the house built, or if we can produce credible witnesses who saw it built, then our task is an easy one. But suppose the building were one of those ancient structures like the ruins of Central America, con-

cerning whose origin history is silent, then what would be our answer? In that case our task would be a difficult one, as difficult as that of analyzing consciousness and explaining its processes. Can any man tell how he knows that he loves his mother? Certainly not. Here the acutest metaphysician is as utterly impotent as the untutored red man of the forest. All that either can say is: "I know that my feelings toward my mother are those of love, and not of hate." How he knows no sane man will undertake to explain.

Now, as with consciousness, so with the intellectual process here involved. We know that when we see a house, a watch, a

steam engine, or a telegraph instrument, and understand its uses, we at once, without the slightest hesitation, pronounce it a contrivance; but the process by which this conclusion is reached we do not undertake to explain. We simply say: "My mind is so constituted that when I see adjustments so nice and adaptations so perfect I cannot help regarding them as the products of intelligence. I cannot, if I would, regard them as freaks of chance or the products of unintelligent forces. Having an effect before me, I am compelled by the very constitution of my mind to postulate a cause adequate to produce the effect, and in this case a cause adequate to produce the



effect is necessarily an intelligent cause.”

Is not this conclusive? The man who would persist in demanding a reason for believing that a house is the product of intelligence would be universally regarded as a madman. Now, if we ascribe a house, a watch, or a steam engine to an intelligent mind as its cause, then by what logic can we avoid applying the same principle to all objects that have similar adjustments and correlations? If there is any reason why this principle should apply to one class of objects and not to another, it devolves upon the atheist to draw the line between the two—to show why it should apply to one

class and not to another. Since this has never been done, we are forced to consider this principle as of universal application. "True in one, true in all;" or else, "false in one, false in all"—these are the two horns of the dilemma upon which atheism finds herself impaled. Either she must deny that such objects as houses, watches, steam engines, etc., are contrivances in all cases where witnesses of their construction cannot be produced, or else she must admit that the whole fabric of nature, man included, is a product of intelligence.

Let us go somewhat into detail on this point. Let us first consider man as to his physical organism.

The human body is a most wonderful piece of mechanism. In the multiplicity of its parts, in the nicety of its adjustments, in the variety of function and facility of action of its various organs, and in the marvelous correlations by which all its multifarious parts are built into one harmonious whole, it is the greatest of all marvels of mechanical ingenuity.

Consider the eye, for example. The human eye is one of the most wonderful instruments known to science. Its anatomical structure is a marvel; the offices it performs a greater marvel still. It can descry objects finer than a needle's point, and it can contemplate worlds at a distance of multiplied millions of

miles. Yet, in order that it may perform its functions at all, it must have light. Without light the eye has no more power to see than has a stone. The fountain whence light must come is ninety-two and a half million miles away. Yet that amazing distance light traverses in less than eight minutes. Light, with its accompanying heat, lifts into the air millions of tons of water every day. It is the source of every motion of the atmosphere, from the gentle zephyr to the terrible tornado that sweeps across a continent, spreading devastation and ruin in its track. Yet this swiftly moving, all-powerful agent, light, falls upon the eye so gently that not pain but all the indescriba-

ble pleasures of vision are the result. Now this correlation between the eye and light is unquestionably one of the most marvelous correlations known to science. Is it an undesigned correlation? Did natural forces produce the eye with all its adaptations and powers? Can any sane mind study the structure of the eye and the properties of light so as to understand how the phenomena of vision are produced, and then deny that there is an intentional adaptation of the one to the other? The telescope is thought to be a wonderful contrivance; yet lives there a man outside the walls of a lunatic asylum who regards the telescope as rivaling or even approximating

the human eye as a piece of mechanism? Every mark of design found in the one exists in the other in far greater plenitude. Hence, if the telescope is the product of intellect, so is the human eye.

And as with the eye, so with the ear. The world of sound; what a marvelous world it is! Who can describe its vastness and variety? Yet this world of wonders owes its existence to a correlation between man's auditory apparatus and the earth's atmosphere. Was this correlation produced without the agency of intellect? Did natural forces produce the ear and give it its power to gather up certain aërial vibrations that impinge

upon it, and out of them create this vast, marvelous world of sound, including all the music of the universe? It would be as rational to assert that the sails of a ship were made by the winds. If the telephone is a manufactured article, so is the human ear.

Consider the circulatory system. No one will deny that the waterworks of one of our modern cities evince design. Make the attempt to believe that the waterworks of one of our American cities were produced by natural forces; that by the operation of light, heat, magnetism, electricity, etc., certain particles of matter gathered themselves together in such a way as to produce the reservoir, and certain other par-

ticles came together so as to construct all the subterranean aqueducts, large and small, and that certain other particles came together in such a way as to produce the hydrants just where they are needed, in street, store, and dwelling. It will be seen that such a feat is impossible. If this be true, then what of the blood works of the human body? You cannot put down the point of a needle anywhere on the surface of the body without striking a blood vessel. What an incomprehensible number of blood vessels does this indicate, and how infinitesimally small they must be! Yet through even the minutest ramifications of this vast system the crimson current flows unceas-



ingly, carrying with unerring precision the fresh, pure pabulum of life to every point where it is needed. Would it not be easier to believe, in the absence of historic information, that the water-works of any city were produced without the agency of intellect than that man's circulatory system was so produced?

Consider also the digestive organs. If it is regarded as a triumph of engineering skill to convert dense metal or solid rock into an attenuated gas, then what of man's digestive apparatus, by means of which ten thousand substances, gathered from every realm of nature, are transmuted into living bioplasm, and then built into the tissues of the body

—muscle, nerve, bone, hair, etc.? This adaptation of ten thousand substances to man's digestive apparatus and to the necessities of his physical nature—is this undesigned? Who can believe it?

And there are the respiratory organs. The body is so constituted that it must have fresh, pure air, or life would soon become extinct. Examine carefully the entire respiratory apparatus, and it will be seen that it is an absolutely perfect machine. Human ingenuity can suggest no improvement whatever. Were those respiratory organs produced by unintelligent forces? Who can accept such madhouse logic?

Were we to take up the nerv-

ous system, the osseous framework, and all other parts of the body, and examine them carefully, we should find each exhibiting incontrovertible proofs that it is a machine devised by intelligence for a specific purpose. And if this is true of each organ separately, how vastly is the force of the argument increased when we consider the body as a whole! If the human body is not the product of intelligence, then, in the absence of positive testimony concerning its construction, it would be impossible to prove that any implement known to civilization had its origin in intellect; for no instrument of man's devising is at all comparable to it as a piece of mechanism.

And this argument applies with still greater force to the mind. How vast the range of the human intellect! Think of all the sciences—physics, chemistry, botany, zoology, astronomy, geology, etc.! What a sum total of intellectual achievement do they indicate! Think of conscience, that queenly faculty which is the source of many of the noblest achievements of our race. Think also of benevolence and of all those actions grounded in it which constitute the richest treasures of human history. Think of the hopes, the fears, the aspirations, the affections of every kind that make up the emotional nature. Survey the mind in its manifold capacities. Is it conceivable that

this mind is the product of mere natural forces unguided by intelligence?

If natural forces cannot produce the steam engine, then how can they produce the mind that contrived the steam engine and created all the sciences and all the arts of civilized life? Think of man as a whole. Bring into view all his mental powers, and then this marvelously endowed spirit as tenanted in this wondrously constructed body; and as you do so repeat the question, "Whence came man?" Is he the product of forces impersonal and unintelligent? When we see a watch, a steam engine, or a telegraph instrument produced by natural forces unguided by intel-

ligence, we shall then be ready to consider the possibility of man's having been so produced. Until then, we shall continue to believe that there is an eternal, uncreated, omnipotent, omniscient, omnipresent Spirit, infinitely good, who created man in his own image.

Having considered the microcosm—the universe within man—we shall now consider the macrocosm—the universe outside of man—or at least that part of it that lies within the domain of the science of astronomy. The statements of astronomers concerning the magnitude, motions, and distances of the heavenly bodies are so stupendous that the uneducated mind is prone to regard

them as the vagaries of a disordered brain and no more worthy of credence than the tales of Munchausen or the legends of the Alhambra. I shall therefore present a few facts which show the reliability of the teachings of astronomy.

In the first place I mention the fact that the art of chronometry, or time-measuring, depends for its very existence upon the science of astronomy. The inventive genius of the present age has constructed instruments that mark the flow of time with marvelous precision; but the most perfect chronometer needs to be set and regulated, and this can be done only by means of the nice observations and wonderful com-

putations of astronomy. Our clocks are set by the stars; "our railroads and factories are run by time which the astronomer brings down from the skies." Astronomy also regulates the calendar. Think what confusion would arise if the seasons were continually shifting around the year. Suppose winter should come every year a little earlier, until after a while midwinter would be in June; and suppose this process should continue perpetually, every month becoming successively a winter month. How chaotic would be our chronology! If we should read in history that an event occurred centuries ago in the month of June, we would not know whether June was then



a summer, or a winter, or a spring month. Now, but for astronomy, this phenomenon would occur; the seasons would be perpetually shifting around the year. "Well-informed people know that this was the case in ancient times. In the days of Julius Cæsar the civil equinox differed from the astronomical by three months, so that the winter months were carried back into the autumnal and the autumnal into the summer. In order to correct this error, Cæsar decreed that the 708th year from the building of Rome (47 B.C.) should consist of four hundred and forty-five days. Other corrections of the calendar have been made as the result of astronomical research." Thus

we see that the Muse of history can write her dates correctly only after consultation with the student of the skies.

In the next place, let us consider the prevision of the astronomer, his predictions of celestial phenomena. An eclipse never takes him by surprise. He foretells its coming years in advance with the utmost exactitude, pointing out not only the day and hour but the very minute and second both of its commencement and its ending. No transit, occultation, or conjunction ever steals upon him unawares. He notifies the world long beforehand, and often makes a journey of half the circumference of the earth in order to secure a favorable posi-

tion for making his observations of these phenomena. And there is no mistake. Precisely at the moment designated the predicted event begins, and precisely at the appointed time it comes to an end. This is an absolute demonstration of the correctness of astronomical methods and the certainty of astronomical conclusions.

As another incontestable proof that the teachings of astronomy are true, I invite attention to the method by which astronomical measurements are made. To illustrate: You are on the seashore, and, looking out upon the bosom of the deep, you behold a little speck upon the far-away line where sea and sky seem to come together. That diminutive

speck, scarcely perceptible, is a large and beautiful ship, bearing upon its decks a cargo more precious than rubies, a cargo of human life. You ask: "How far away is that ship?" A surveyor is present. He replies; "I can soon tell you." So he lays off on the shore a base line of definite length, and then goes to one end of this base line, and with his theodolite measures the angle which this base line makes with the line of vision going from his eye to the ship. He then goes to the other end of the base line and does the same thing. Having one side and two angles of a triangle, a simple trigonometrical calculation gives the distance with as great precision as

if he had measured it with a tape-line. Again: While traveling you behold in the dim and hazy distance the glittering, snow-clad summit of a lofty mountain range, towering above the intervening hills and looking like a brilliant sunlit cloud fringing the distant horizon. You ask: "How far away is that mountain?" Quickly your surveyor takes his measurements of line and angles, and your question is answered. And not only are you told how far away that mountain is; you are also told how high it is above the spot where you stand, and above the level of the sea.

Does some one still shake his head and inquire, "How do you know that these calculations are

correct?" If so, then we are prepared to furnish ocular demonstration of their correctness. A railroad company desires to construct a tunnel for miles through a mountain of solid rock. Two companies of laborers are set to work on opposite sides of the mountain. After years of toil, they meet in its center, when, marvelous to tell, it is seen that walls and floor and roof of the two excavations coincide exactly. There is nowhere a divergence of more than a small fraction of an inch. Now this marvelous result is achieved by means of the mathematical process of triangulation, the very process employed in ascertaining the height of a mountain or the dis-

tance of a ship from the shore. And the method by which these terrestrial distances and magnitudes are determined is precisely the same method employed by the astronomer in measuring celestial distances and magnitudes. In order to measure the distance of a star from the earth it is only necessary to get a base line, and then measure the angles which this base line makes with the two lines of vision going from the ends of this base line to the star. Then a very simple calculation gives the distance of the star. The process is exactly the same as that by which the surveyor measures the height of a mountain or the distance of a ship from the shore. The only difference is

that in the astronomical problem it is much more difficult to make the angular measurements, much more delicate instruments and much greater nicety of observation being required. But when the measurements are taken, the calculation is the same in both cases. These facts are an absolute demonstration of the reliability of the teachings of astronomy. The simple truth is that no sane man can study astronomy, after having mastered the higher mathematics, and then call in question the absolute correctness of its methods and the proximate certainty of its conclusions. The only possible errors are in making the angular measurements, and with the delicate in-



struments and skillful observations of the present day these are comparatively small.

We will now consider a few of the more important facts which have been discovered by astronomical investigation. The first great fact is that the earth revolves upon its axis once in twenty-four hours, thus bringing about the succession of day and night, and that it revolves in its orbit once in three hundred and sixty-five and a fourth days, thus producing the changes of the seasons. Several of the stars which gleam upon us nightly from the heavens above belong to the same category; they revolve around the sun in varying periods of time, each one whirling upon its axis

as it goes. These stars (the earth included) are called planets. Several of them have satellites, or moons, revolving around them.

The sun and the stars that circle around it, with their attendant moons, make up what is called the solar system, which we will now consider very briefly. First we will take a glance at the sun. Its size first merits attention. Strange as it may seem to those unacquainted with astronomy, the sun is one million two hundred and forty-five thousand times as large as the earth. Try to comprehend that statement. If one million silver dollars were placed before you and you were required to count them one by one, it would take you a solid month to

perform the task, supposing you to work ten hours a day and to count at the rate of fifty a minute. With this conception of the magnitude of the idea involved in the term one million, imagine one million two hundred and forty-five thousand worlds like this molded into one world, and imagine this huge world set on fire, and you have a crude view of our glorious orb of day.

Around this huge globe of fire the planets revolve and from it receive an unceasing supply of light and heat. The nearest of these to the sun is Mercury. Mercury is rarely seen by the naked eye. Occasionally a sharp eye, by close watching, may catch a glimpse of it just before sun-

rise or just after sunset. But the view is quite momentary. Quickly he hides behind the western hills, or fades away amid the splendors of the morning. But, after all, this insignificant-looking specimen of the genus planet, which is continually hiding itself amid the folds of the sun's robes as if it were afraid that the glance of our sinful eyes would pollute it, is a very respectable-sized world. It is no less than nine thousand miles in circumference, so that it would take a tourist, traveling at the rate of twenty-five miles a day, no less than a year to go around it. It receives about six times as much light and heat from the sun as the earth does. A heat six times as great as that

of one of our tropical summers would make a very respectable purgatory. But if Mercury's summers are hot, they are exceedingly short. Its year is only eighty-eight days long; hence each of its seasons lasts only about twenty-two days.

Next in order comes Venus, apparently the largest and brightest star in the heavens. In size it is about equal to the earth. Its year is equal to two hundred and twenty-four of our days, a little over seven months. Its seasons are therefore a little less than two months in length. It is enveloped by an atmosphere similar to that of the earth. Neither of these intraterrestrial planets has a moon.

Passing by the earth and its

moon, we come to Mars, conspicuous in our terrestrial sky for its size and its fiery red color. In size this planet is considerably larger than Mercury, though its diameter is only about half that of the earth. It revolves on its axis in about twenty-four hours; hence its days and nights are just about equal to ours in length. Its year is nearly equal to two of our years; consequently its seasons are about twice as long as ours. Like Venus and the earth, it has an atmosphere. Its surface is diversified by land and water, continents and oceans, just as the earth's surface is; and there are accumulations of ice and snow around its poles just as there are around the poles of the earth.

Moreover, these polar ice fields partially melt away in summer, just as they do here. Mars has two moons. These are both quite small, but they are so near the planet that they appear much larger, seen from its surface, than our moon appears to us.

Just outside the orbit of Mars we come upon a number of planets so small that they cannot be seen with the naked eye. The number of them known at present is more than five hundred, and new ones are being discovered continually. The largest is only about three hundred miles in diameter, and most of them are very much smaller. Some of them are said to be not more than twenty miles in diameter.

Twenty miles in diameter means sixty miles in circumference. Just think of it! Wouldn't it be grand to live in a world so small that you could drive entirely around it in a day with a horse and buggy? Why, you could live in perpetual daylight or perpetual night, just as you might prefer. If you were to start early in the morning and travel westward at the rate of sixty miles a day, you would have morning all the while. In twenty-four hours you would travel around the little world and reach the point from which you started. That place would in the meantime have passed through a day and night, but you would have seen no night nor even noon. You would



have been all the while inhaling morning airs and gazing on sunrise glories. And this you might continue to do forever, provided you lived that long and changed your team occasionally. In like manner, by starting at the proper time, you might gaze forever upon the gorgeous hues of the sunset sky. Or, if you are particularly fond of moonshine, you might dwell forever in the shades of night, never beholding the sun a single time in millions of years. And these little worlds surpass all the rest of the universe, so far as I know, in the quantity and quality of their moonshine. Although they are so small, they are so near together that each appears to the others to be quite

large, and each one serves the others as a moon. If you were to spend a night on one of these little planets, you would see more than a hundred moons all at the same time—some of them vastly larger than our moon appears to us, some of them smaller—some new moons, some full moons, some half moons. They would be seen in all parts of the sky, moving in various directions, changing their phases rapidly, crossing each other's pathway, eclipsing each other, and variously moving about as if in the mazes of a weird, fantastic dance. Glorious scenery, isn't it? Indescribably glorious! Yet, after all, a world whose chief recommendation is the quantity or quality of

its moonshine may not be a very desirable place of abode. It would doubtless suit some people. It would be a grand place for moon-struck poets, first-sight lovers, novel-readers of a certain class, and especially for those shallow-brained, spread-eagle declaimers of the Ingersoll type who prefer shadow to substance, and who revel perpetually in the sublimated moonshine of agnosticism and materialism; but for ordinary mortals this terrestrial globe is infinitely preferable as a place of abode. If a ponderous specimen of the *genus homo* were transported to one of these little planets, he would be surprised to find that, instead of weighing two hundred pounds as he does here, he would

weigh less than a pound. I am not joking nor romancing. Weight is the measure of the force of gravitation. When we say that a body weighs a hundred pounds, we mean that the earth draws it downward with a force equal to one hundred pounds. And gravity is proportional to mass or quantity of matter—*i. e.*, a large body exerts a greater force than a small one. Now, taking the earth's diameter (eight thousand miles) and the diameter of one of these little worlds (twenty miles), make a calculation, and you will see that I have understated rather than overstated the truth in regard to this matter. From what has been said it follows that the same muscular ex-

exertion which is requisite to lift ten pounds here would there be sufficient to lift a ton. A school-boy who feels elated when he becomes strong enough to lift a sack of shot from the floor, if he were carried to one of these little worlds, could take up a loaded freight car on his back and walk off with it as easily as Samson walked off with the gates of Gaza. The boy would be no stronger than he is here, but the weight of the freight car would be many hundreds of times less. The same muscular exertion which here enables a man to jump a distance of ten feet would there enable him to leap clear across the Mississippi River—*i. e.*, if there were one—but of course

such a world could hardly have a stream big enough to turn a flutter mill. Although these worlds are so small that they can never be seen by the naked eye, yet astronomers know them all by name, never mistaking one for another, know their distances from each other and from the sun, know the orbit in which each moves, and know in what part of its orbit each one is at any particular time, even when it is beyond the range of the mightiest telescope.

Next we come to the giant of the solar system—Jupiter. Jupiter is about thirteen hundred times as large as the earth. A railroad train traveling continuously at the rate of five hundred

miles a day could not go around in less than about a year and a half. It revolves upon its axis in about ten hours, so that its days and nights are only about five hours long. Its year is nearly equal to twelve of our years, so that its seasons are three years long; I mean, of course, three of our years. It has five moons, which vary greatly in size. These moons also differ in color, two of them being blue, one yellow, and one red. It has an atmosphere that rises to a great height. It is perpetually enveloped, from pole to pole, by clouds of great density. It is perhaps an instance of a world on fire. The latest researches of astronomers seem to indicate

that the entire body of this planet is in an intensely heated condition—melted, glowing, white-hot.

The next planet is Saturn. It also is many hundreds of times larger than the earth. Its days and nights are about equal to those of Jupiter—five hours each. Its year is equal to twenty-nine of our years, making its seasons each a little more than seven years long. It has eight moons. It has also a very remarkable attendant in the shape of a luminous ring extending entirely around it. To form an idea of this ring as seen from the surface of the planet, imagine the tail of the beautiful comet of 1882 to be extended clear across



the sky and then around the earth to the comet's head. Then imagine this ring to be wide enough to cover at least one-fourth of the sky, and to be visible day and night. In addition to this, think of eight moons careering across the sky, changing rapidly—to crescent-shaped, gibbous, semicircular, full-orbed, all in a few hours. In physical constitution Saturn resembles Jupiter—a globe of liquid fire, encircled by a mantle of cloud.

The next planet, Uranus, is also much larger than the earth. It has four moons. Its year is equal to eighty-four of our years.

We now come to the outermost planet of our system—Neptune. It is a body of immense

size, its circumference being more than a hundred thousand miles. It has only one moon. Its year is equal to one hundred and sixty-four of our years. Each of its seasons is therefore forty-one years long. If an inhabitant of Neptune were born on the first day of spring, he would have to live forty-one years—that is, forty-one of our years—before he would see the first day of summer, and then he would have to live forty-one years longer, which would make him eighty-two years old, before he would see the first frost. And when he was a hundred and sixty-four years old by our method of reckoning time, he would be only a year-old baby according

to Neptunian almanacs. If Methuselah had lived on Neptune instead of here, he would not have been old enough to start to school when he died; he would have been only a little over five years old. But if he were to live nine hundred and sixty-nine years measured by Neptunian almanacs, then by ours he would be 158,916 years old—a period more than twenty-five times as long as that which is supposed to have intervened since Adam was created. If Moses had been born in Neptune, and had lived on until now, he would now be only about twenty years old.

The solar system also includes a vast number of those erratic

bodies, the comets. Their number is not definitely known, but it is estimated at several millions. They revolve in orbits that are hundreds of times longer in one direction than in the other. They are visible to us only when in that part of their orbits which is nearest to the sun. Their times of revolution are exceedingly various. Some of them reappear at intervals of from three to seventy-five years. Others, after gleaming upon us for a short time, plunge far out into the dark profundities of space, to be seen no more by mundane eyes for thousands of years.

Now, let your mind rapidly review the facts we have learned concerning the solar system.

The number of planets known at present, including the asteroids, is more than five hundred. They are of all sizes, from twenty miles to eighty-six thousand miles in diameter. They all whirl upon their axes, the time varying from ten to twenty-four hours, while at the same time they revolve around the sun, the time of revolution varying from eighty-seven days to one hundred and sixty-four years. Besides these, there are twenty satellites revolving around the planets. Then, there are the comets, nobody knows how many thousands of them, circling in among the planets for a time, and then plunging out into those far-off depths of space which no eye

can pierce. In addition to this, the whole solar system is in motion. The sun, with all its brilliant retinue of planets, satellites, and comets, is rushing on through space in an orbit of almost incomprehensible dimensions at the rate of several thousand miles per hour.

Let us next consider celestial distances. The mean distances of the planets, as given by Newcomb, are as follows: Mercury, forty million miles; Venus, sixty-six million; earth, ninety-two and a half million; Mars, one hundred and forty-one million; Jupiter, four hundred and eighty million; Saturn, eight hundred and eighty million; Uranus, one billion seven hundred and sev-

enty million; Neptune, two billion seven hundred and seventy-five million. It is easy enough to pronounce these words, but to comprehend the idea they embody is a very different matter. Let us try to enlarge our conceptions by the aid of an illustration. Suppose a railroad could be built from the earth to the sun, and suppose a train should run on it continuously at the rate of five hundred miles per day. How long would it take for that train to go from the earth to the sun? Make the calculation, and you will see that it would take more than five hundred years. If the train had started from the sun on the day that Columbus discovered America, and had traveled con-

tinuously ever since, it would up to this time have come only about four-fifths of the distance. A hundred years more must pass away before it would reach the earth. It would take a man walking at the rate of twenty-five miles a day just twenty times as long—*i. e.*, ten thousand years. If Cain had started on a journey to the sun on the morning after he slew Abel, and had traveled continuously since, he would up to this time have traveled only about three-fifths of the way. Four thousand years more must be spent in ceaseless tramping before the old vagabond would show the mark of a murderer to the inhabitants of the sun.

The distance of Neptune from



the sun is, in round numbers, thirty times as great as that of the earth. Hence, it would take thirty times five hundred years—*i. e.*, fifteen thousand years—for our express train to travel from the sun to Neptune. It would take a pedestrian twenty times fifteen thousand years—*i. e.*, three hundred thousand years—to make the journey, a period fifty times as long as that which has passed since Adam took his first nap in Eden.

We have hitherto kept within the limits of the solar system. Let us now venture into the regions beyond. Since all the stars appear to the eye to be equidistant from the earth, one unacquainted with astronomy

would naturally suppose that if he could transport himself to Neptune he would be in close proximity to most of the stars. This, however, is a most egregious error. If you could visit this outermost planet of our system, although you would have consumed fifteen thousand years in the journey, traveling with railroad speed, yet you would be apparently no nearer the fixed stars than you are now. Leaving out of the account a few of the planetary bodies belonging to our solar system, the star-spangled sky would present the same appearance that it does here. There would be scarcely a perceptible difference in the magnitude or brilliancy of a sin-

gle one of the glittering gems that bedeck the brow of night. Do you wish to know how much farther you must go in order to reach the nearest fixed star? Well, listen, and I will tell you. Your astronomical yardstick—the distance from the earth to the sun—is ninety-two and a half million miles long, so long that it takes our railway train five hundred years to go from one end of it to the other. Now, you must lay down this yardstick no less than two hundred and twenty-six thousand times. To traverse this distance, your train would require two hundred and twenty-six thousand times five hundred years—*i. e.*, one hundred and thirteen million

years. If our train had started from the earth on the morning that Adam was created and had traveled continuously until now, it would have traversed only about a twenty-thousandth part of the distance.

Perhaps it will give a still more impressive idea of these distances if we consider the length of time that it takes for light to traverse them. The velocity of light, you know, is amazing. The distance from the sun to the earth, which our railroad train could not traverse in less than five hundred years, light traverses in less than eight minutes, so that its velocity is more than thirty million times as great as that of our railway train traveling

five hundred miles a day. Now, the nearest fixed star is so far away that its light, traveling with this almost inconceivable velocity, cannot reach the earth in less than three and a fourth years. Another star whose distance has been measured requires more than seven years for its light to reach us. The light of still another consumes forty-five years in its earthward journey.

Hitherto we have been considering the nearer stars—those that are plainly visible to the naked eye. These, however, are, comparatively speaking, utterly insignificant in number. Bring the telescope to your aid, and you multiply the number of visible stars almost immeasurably.

Those who have never employed telescopic aid in contemplating the diamond-studded dome above can have no conception of the enrapturing splendors that burst upon the vision as the fire-clad hosts by millions go trooping across the sky. The number of these telescopic stars is so great that an exact enumeration of them is almost impossible. Nothing more than an approximation has ever been attempted. Now, the distances of these telescopic stars cannot be accurately determined, as can the distances of the nearer ones. The method of triangulation is no longer applicable. There is another method, however, called the method of telescopic amplification, by

which astronomers estimate the distances of even these far-off worlds. Applying this method, astronomers have reached the stupendous conclusion that some of these telescopic stars are so remote that their light can reach us only after a journey of thirty millions of years. (This is the estimate of the late Gen. Mitchell.)

Now, imagine yourself taking a journey to the remotest star revealed by the most powerful earthly telescope, that star whose light can reach us only after a journey of thirty millions of years. In such a flight you would very soon reach a point from which this earth, great as it appears to us, would be seen only as a very small star. Going

farther still, the earth would pass from sight. This would be the case even before we got beyond the limits of the solar system. From Neptune the earth could be seen only by the aid of a very powerful telescope. We know that this would be the case, because Neptune cannot be seen from the earth except with a good telescope, although Neptune is a great deal larger than the earth. Beyond the limits of the solar system there lies a vast tract of empty space, more than twenty trillions of miles in extent. I have already shown that, in order to cross this vast abyss and reach the nearest fixed star, a railroad train would require one hundred and thirteen millions of



years—a period twenty thousand times as long as that which has intervened since the creation. Into this dark gulf you plunge on your lightning wings, and onward wend your solitary way. No planet or satellite crosses your path. Now and then a lone comet goes blazing by; but even he, hermit though he is, soon grows tired of these dreary, lifeless solitudes, and rushes back with more than railroad speed to those regions where he can hear the many-voiced hum of life and witness the multitudinous activities of Godlike mind. Onward you go, and soon all the planets of the solar system are lost sight of. Even the colossal Jupiter fades from view. When

you have reached the nearest fixed star, even our great sun is seen as a very small star, a mere glittering point in the heavens. For our sun is a star, and many of the fixed stars are suns having a number of planets revolving around them, these planets being invisible to us on account of their distance. Now, leaving the first fixed star, as we call it, with its brilliant retinue of planets, satellites, and comets, you go onward toward the next star. Before you reach it, your first fixed star has dwindled to a point, and all its planetary attendants have been lost sight of. Approaching this second fixed star, you find it also surrounded by a gay company of

planets, moons, and comets, diverse in size and appearance, and circling around it in various periods of time. And thus, as you pass on, star after star resolves itself into the center of a solar system and reveals its hidden glories to your enraptured gaze. And thus you go on and on, passing one solar system after another, until at last you reach your destination—that star whose light reaches us after a journey of thirty millions of years. Just think of it! Thirty million years, traveling with a velocity thirty million times as great as that of the railway train. The light that left one of those stars on the morning that Adam sat down to make his first fig leaf

robe—say six thousand years ago—has up to this time traveled only a five-thousandth part of the distance to the earth. More than twenty-nine million years must pass before those golden beams will reach our terrestrial dwelling place. If multitudes of these remote telescopic stars had been blotted out of existence twenty-five millions of years ago, we would not yet have found it out; and if they should be annihilated to-day, thirty million years would pass before any earthly astronomer would miss them from the sky. It is possible that myriads of bright worlds may have been created in those far-off realms long before the first flower bloomed in

Eden, and yet no earthly eye has yet seen them, or shall see them for millions of years to come. What an idea does this give us of the extent of space and of the overwhelming grandeur of the material universe!

But we have not yet reached a stopping place. The first telescopes that were constructed were of small magnifying power, and hence brought to light only a few new worlds. Soon afterwards instruments of greater power were constructed, and these vastly increased the number of visible worlds. Since then improvement after improvement has been made in the telescope, and every successive augmentation of optical power has evoked

from the viewless depths of space countless myriads of flaming worlds unseen before. This being the case, astronomers believe that if it were possible to construct a telescope having a magnifying power ten thousand times greater than that of any now in existence the number of visible worlds would be proportionately increased. What is a drop of water in comparison with the ocean, or a grain of sand in comparison with the earth? Yet ten thousand times smaller, perhaps, is that part of the universe which lies within the range of telescopic vision when compared with that part which lies in those measureless abysses which no telescope has ever penetrated.

Imagine yourself instantaneously transported by some mysterious power to a point far beyond the remotest star revealed by the most powerful telescope. Pause and ask yourself, "What lies before me?" The answer is, "Space." Rise upon the pinions of an angel and travel with the velocity of the lightning's flash, and continue your flight for more millions of ages than there are drops of water in the ocean, what lies before you? Space. Increase your speed a thousandfold, and go on and on and on for more millions of ages than there are atoms of matter in the whole visible universe. Have you yet reached the boundaries of space? Why, you are no

nearer than when you began your flight. Space is infinite. It is "a circle whose center is everywhere and whose circumference is nowhere." So, then, there is room in space for more millions of worlds than our arithmetic can compute or our finite imagination can conceive of. And since every successive increase of telescopic power has revealed worlds unseen before, it is only reasonable to suppose that still greater telescopic power would bring into view multiplied millions more. Increase your speed ten thousand fold (remember that you are already traveling with a velocity a thousand times greater than that of the lightning's flash), and go on and



on and on for more millions of ages than there are atoms of matter in the whole telescopic universe. Would you be—I will not say beyond the boundaries of space, for of course you would not—but would you be beyond the boundaries of the material universe? Who will venture the rash assertion? Doubtless you would still find yourself surrounded by countless millions of flaming worlds, stretching away in every direction beyond the reach of telescopic vision.

Let us next inquire concerning the origin of the material universe. At the very outset of this investigation we are sometimes confronted with a deal of grandiloquent dogmatism about “the

eternity of matter;" and those who thus talk seem to imagine that they are really solving the problem before us. A very little reflection, however, will suffice to show that such an answer is entirely irrelevant. If we admit that matter is eternal, it is nevertheless certain that the universe in its present form is not eternal. Science knows, if it knows anything at all, that the material universe has passed through a multitude of changes. An extensive flight backward along the track of geological history brings before us a very different world from that in which we dwell. And other worlds have experienced similar changes. So, then, what we have to account

for is not simply matter, but matter organized. Not an ideal universe in which matter exists in a chaotic state, but the universe as it is, a universe in which law, order, harmony, adaptation are everywhere apparent—that is the phenomenon to be accounted for.

Does some one suggest the evolution theory as a solution of the problem? Wherein does that aid us? Evolution is not a thing, a power, a cause; it is only a process. Evolution is simply a term used to describe the method by which some power works. The question “What is that power?” it does not touch and cannot touch. The man who speaks of evolution as an origi-

nating cause stultifies himself. Suppose we admit that the sun, the moon, the earth, and all those bodies that make up the solar system, and all the worlds in the universe, were slowly—no matter how slowly—evolved from matter in a gaseous form—the evolutionist's fire mist. What we then have to account for is not simply fire mist, but fire mist plus the order and harmony of the universe—fire mist that shall inevitably develop worlds and systems of worlds with all their paraphernalia. Now, what is the evolving power? What is the nature of the cause that has produced the universe in its present shape? Is it an intelligent or an unintelligent cause? That is the

question at issue? How shall it be answered?

Let us in the first place make inquiry concerning the origin of motion—particularly the motions of the heavenly bodies. Let it be noted that motion is a universal characteristic of the heavenly bodies. Every planet, as we have seen, has a double motion, a motion on its axis and a motion in its orbit. And the whole solar system is in motion. Now, what is true of the earth and our solar system is true of all worlds and all systems. Every world and system in the universe is in motion.

Now, how did these motions originate? Inertia is one of the primary and essential properties

of matter. Place a stone in the street, and, if it could be preserved from decay, it would lie there forever, unless acted upon by some extraneous force. It has no power to put itself in motion. And as with the stone so with every atom of matter in the universe. No world, no atom, no possible combination of atoms can put itself in motion. This is an ultimate principle in science.

“But,” says the materialist, “may it not be that these motions of the heavenly bodies had their origin in heat, electricity, gravitation, or some other one of the great correlated forces of nature?” It is freely admitted that at the present day many of the motions of nature are pro-

duced in this way. For instance, many of the motions of the atmosphere have their origin in heat—that is, different parts of the atmosphere become unequally heated, and thus an ærial current is created to restore the thermal equilibrium. Water also is put in motion by heat in the process of evaporation. Many other instances might be given. Now, says the materialist, just as these motions are produced, just so all the motions of the heavenly bodies were produced. The natural forces are a sufficient explanation of them all.

This theory, though plausible, is inadequate, for the conditions under which these forces now

act are altogether different from the conditions under which they acted in the beginning. The primordial state of matter according to all the evolution theories is that of a gas uniformly diffused. Let us form a picture of that primeval universe. Let us imagine all space, or at least all that we know anything about, filled with matter in a gaseous form, and let us conceive of it as perfectly motionless, and then attempt to devise a plan by which motion shall originate. Heat cannot originate it, because heat creates motion only where there is a thermal inequality, and in this case all the particles of matter in the universe are, according to the hypothesis, in the same



thermal condition. And so electricity originates motion only where there is a want of electrical equilibrium. But in the case before us there is no such want of equilibrium, all matter being in the same electrical condition. Hence it is apparent that electricity could not have originated the motions of the heavenly bodies. And the same is true of gravitation. Gravitation can create motion only where there is a difference of magnitude or density between two bodies; and according to the theory there was in this case no such difference, matter being everywhere of the same density. Moreover, gravitation is merely the centripetal force that exactly counterbal-

ances the centrifugal force, and thus prevents the planets from flying off at a tangent. Gravitation alone, unmodified by any other force, would cause every planet to plunge at once headlong into the sun, and would cause all the solar systems in the universe to rush together into one colossal mass of chaotic matter—the most appalling catastrophe that even Deity's imagination can conceive of. Hence it is impossible that gravitation can be the originating cause of motion. Thus we see that the great natural forces—heat, light, electricity, gravitation, etc.—can create motion only when the equilibrium of the gaseous universe has been disturbed so as to bring about a

difference of density, or of electrical or thermal conditions. In other words, the natural forces can produce motion only after motion has already been produced. The primal motions of the universe could not possibly have had their origin in the natural forces. Given a universe of gaseous matter uniformly diffused and perfectly motionless, every particle of it will remain motionless throughout eternity unless motion be communicated to it from some extraneous source. Is there such an extraneous source? Can we find motion that has its source outside the realm of matter? Let us see. I lift my arm. Here is motion. Where did this motion

originate? Did it originate in the matter that composes my arm or my brain? The matter in my body is iron, lime, sulphur, carbon, hydrogen, phosphorus, etc., the same materials that are found in the soil. The iron in my body has no more power to put itself in motion than has the iron in a crowbar. And so of all the other elements that compose my body. The motion of my arm, then, cannot have originated in the matter that composes my arm or my brain or any other part of my body. Where, then, did it originate? Reason has an answer: "Not in the iron, carbon, or phosphorus in my arm or brain, but in that invisible, intangible, immaterial

something within that thinks and feels and wills—that something which we call the soul.” Here, then, we have two fundamental principles. (1) Matter cannot originate motion. (2) Mind can originate motion. Motion, then, had its origin in mind. Just as the motions of my body have their origin in my mind, just so the motions of the heavenly bodies had their origin in the infinite mind of the Deity. If this is not a philosophical explanation of the origin of motion, then none has ever been given.

Thus we see that the motions of the heavenly bodies, considered in themselves, proclaim the existence of a God. If this is

true of these motions, considered in themselves, how vastly is the force of the argument increased when we consider the character of these motions!

Let us contemplate the power displayed in these celestial motions. Power is expressed in motion, and is measured by the mass and velocity of the moving body. A mortar gun hurling its deadly missiles of three hundred pounds' weight miles into the air is usually regarded as a tremendous exhibition of power. An Indian, reared in one of the territories of the far West, once took a journey far from his home, came within the confines of civilization, and stood for the first time by the side of a rail-

road. Presently a lightning express train came rattling and crashing and thundering along with the speed of an eagle in pursuit of his prey. The Indian's eye dilated, his breast heaved with emotion, and he stood motionless as a statue, watching the receding train until it passed out of sight. Then, lifting hands and eyes to heaven, he exclaimed: "Take care, Great Spirit; the white man will beat you." To the untutored mind of the Indian the rapidly moving railway train is a most tremendous exhibition of power. But both mortar gun and railway train are utterly insignificant as exhibitions of power when compared with the motions of the

heavenly bodies. We must bring imagination to our aid and construct our own symbols of power. Imagine Mount Chimborazo upheaved from its base, lifted high into the air and hurled with the velocity of a cannon ball clear across the Pacific Ocean into the heart of Asia! Imagine the whole continent of America, from the ice-bound fastnesses of the arctic zone to the storm-swept coast of Southern Patagonia, hurled aloft with a force so great that it would never return, but go circling on around the sun like a new asteroid forever. What stupendous exhibitions of power these would be! Yet what would be even this force in comparison with that which is



displayed in the perpetual motions of the heavenly bodies? Think of this great earth, with all its paraphernalia, whirling upon its axis at the rate of a thousand miles per hour, while at the same time it courses along its annual track at the rate of sixty-eight thousand miles per hour. Sixty-eight thousand miles per hour! That means more than eleven hundred miles per minute. Your fastest railroad train runs only about one mile per minute. Just think of this great earth moving eleven hundred miles while your lightning express train goes one mile. And yet this great terrestrial car moves along its ethereal track so smoothly that "it does not dis-

turb the slumbers of the babe in its cradle, or shake the young birdling from its nest in the tree top." And this is one of the minor motions of nature. Jupiter whirls upon its axis at the rate of twenty-five thousand miles per hour, while Mercury courses along its annual track at the rate of eighteen hundred miles per minute. Just think of a great world moving eighteen hundred miles while your lightning express train goes one mile. And it is estimated that many of the fixed stars have a motion far more rapid than this. It is estimated that one of them has a velocity of twelve thousand miles per minute. Endeavor to estimate the power requisite to pro-

duce and sustain these motions. Here is the sun, a great burning world, more than a million times larger than the earth, hanging unsupported in the heavens. Then there are more than five hundred planets and satellites of various sizes revolving around it with the amazing velocities of which I have spoken. Then, the whole of this magnificent system—sun, planets, satellites, and comets—is rushing on through space in some unknown orbit at the rate of thousands of miles per hour. Besides all this, remember that nearly every star that gleams upon us from the nocturnal sky or crosses the field of the most far-reaching telescope is a sun, the center of a system of worlds

equally magnificent with ours, and that all these solar systems are in motion, some of them moving at the rate of twelve thousand miles per minute. I say, contemplate all this, and then tell me what is your estimate of the power requisite to produce these motions and to maintain them through countless millions of ages. Can it be less than infinite power?

Let us next consider the marvelous precision of these motions. It is a triumph of modern engineering skill that our railroad trains are so frequently on time. Yet they are not always on time. Moreover, when we say that a train is on time the language is not to be construed too literally.

By such an expression we simply mean that it is within about a minute of the schedule time. Seconds are hardly taken into the account at all. But when we contemplate the heavenly bodies, we behold motions whose precision is absolutely marvelous. Each revolving orb completes a revolution on its axis within a definite period, never varying the ten-thousandth part of a second. And not only the axial, but also the orbital motions are characterized by this marvelous exactness. Select a given point in the orbit of the earth or any other planetary body, and the astronomer can tell you when it will reach that point, not only to a minute, but to a fraction of a

second. We witness proofs of this every day. The family almanac that hangs by the fireside contains predictions concerning eclipses, transits, conjunctions, occultations, etc. And these predictions are fulfilled with marvelous minuteness. Precisely at the appointed time the predicted events take place. If there is the slightest variation, the astronomer is absolutely sure that the fault is with himself and not with the revolving orb. He may make a slight error in his observations or calculations, but the planetary body does not vary one iota from its predetermined rate of motion.

Now, then, let your mind run over all these facts; think of the vast number of worlds, their

size, the velocity with which they move, and the amazing precision of their motions. In addition to this, remember that all these countless millions of stupendous world systems have been in existence and have kept up their ceaseless and complicated motions not for six thousand years alone, as men once supposed, but for multiplied millions of ages. I say, think of all this, and then tell me: What is the power that preserves the stability and harmony of the universe? What prescribes to each world and system one lone pathway from which it dare not deviate? What prevents world from colliding with world and system with system until the

whole universe becomes one vast scene of wreck and ruin paralleled only by the primeval chaos from which all things sprang? What is the force that perpetuates the universe with its complexities and harmonies, its beauties and utilities? We have already seen that all motion has its origin in mind. The question which now confronts us is: What sort of mind is competent to the task of producing and perpetuating the marvelous phenomena we have been contemplating. Can it be less than an infinite mind? Imagine an unomniscient being endowed with unlimited power. Command him to create a solar system. Let him have all the wisdom imaginable less



than infinite wisdom. Give him intelligence far surpassing that of the loftiest archangel. Let him have matter to begin with. Suppose all the space now occupied by the solar system to be filled with matter in a gaseous form. Command him to condense all this vast mass of glowing, incandescent gas into the more solid forms of matter, to fashion it into worlds of various dimensions, and of these worlds to construct a solar system. Notice the conditions of the problem. He must know precisely how much matter to put into the great central luminary and into each revolving orb. No mistake here, not even the slightest, can be allowed. Too much matter,

or too little, anywhere would certainly destroy the equipoise of the entire system, and involve it in utter ruin. He must also place each planet at a proper distance from the central luminary, the magnitude of each being taken into the account. A mistake here would also be fatal. He must also give to each revolving orb its proper rate of motion. Too great velocity would break gravitation's cord, and send the planets out into the dark, unfathomable abysses of space, never to return but to wander on and on forever. Too little velocity would so augment the centripetal force that each planet would continually draw nearer and nearer to the great central orb,

until at last it would plunge headlong into that great globe of fire. Now, under these conditions, command your mighty spirit to create a solar system. He has the power, for we have given him omnipotence. But what is his reply? Ah! I see him now, his cheek blanched with terror, his knees smiting together, as with tremulous voice he cries: "You must also give me omniscience, or else release me from the impossible task. If one single mistake is to involve this whole system in everlasting ruin, what avails all my power unless I also have wisdom commensurate therewith? No! If you wish me to undertake this task, you must give me not only

omnipotence, but also omniscience; for without it I know I should make not only one but ten thousand mistakes." Well, if infinite wisdom as well as power divine is required to produce one solar system, how much more to create ten thousand times ten thousand solar systems and preserve them through millions of ages with all their complex motions and all their multitudinous and incomprehensible actions and reactions upon each other?

But if this is true of these motions in themselves without any reference to their designs, how vastly is the force of the argument increased when we consider them in their teleological

aspects! Let us specialize a little. Let us contemplate briefly a few of the multitudinous correlations and adaptations manifest in the material universe. Of course exhaustive treatment is impossible within the brief limits which the proprieties of the occasion allow.

Let us consider the earth's motions. If the earth were perfectly stationary, one-half of its surface would be enshrouded in the perpetual gloom of midnight. This darkened hemisphere, shut out from the sun's heat as well as its light, would be a vast arctic zone, a region colder far than that in which Franklin and his heroic band fell victims to the fury of the Frost King's le-

gions. In all this broad domain no living thing could stand before the blasts of winter's nostrils. Neither animal nor vegetable life could exist. It would be a land of desolation, a hemisphere of ice and snow.

The other half of the earth's surface would equally suffer from a superabundance of heat. Exposed to the perpetual glow of a summer's sun, vegetation would wither and die, and all the land become a parched, desert region, uninhabited and uninhabitable. So, then, the earth's motions are the very *sine qua non* of its habitability. Arrest these motions, and you depopulate the earth; you transform it into a capacious grave, and make its very name

the synonym of all that is dreary and desolate. Now here is a wonderful correlation between the earth's motions and man's physical organism. There is a nice adaptation of the one to the other. Is this an undesigned correlation, a mere haphazard coincident? Who can believe it?

Let us next consider earth's machinery for irrigating its soil. The animal kingdom is dependent upon the vegetable kingdom. Neither man nor any other animal could long exist were earth entirely denuded of vegetation. In order that vegetation may exist, it is necessary that the soil shall be irrigated—abundantly watered. The water which is to irrigate the soil is locked up in

nature's great storehouse, the ocean. How are the two to be brought together? Look upon the scene. Here are broad continents, arid, burning, thirsty, crying, "Water, water, water." There are old ocean's chambers filled with the liquid treasure. But Neptune claims every drop as his own possession; and, lest some one should steal it away, he has bound every drop hard and fast with an adamantine chain called the attraction of gravitation. Now who shall cut these chains asunder, and gather up the coveted treasures, and scatter them broadcast over the land? Is it not a hopeless task? What mortal feels himself competent to devise the machinery



that shall irrigate a continent? For once, Eads and DeLesseps confess their want of skill, and cry, "Impossible!" But, hist! Here comes rushing down from the sky a bright spirit that can perform the mighty task. His name is Sunbeam. As noiselessly as the snowflake falls, and yet as rapidly as the lightning leaps from the tornado's breast, he comes from his home in yon distant luminary, cuts gravitation's cord asunder, and lifts the pearly drop into the air. Quick as thought a gentle zephyr, unseen by mortal eye, takes the liberated captive upon his wings, and bears it away, away into the heart of the continent, and precipitates it, in sparkling dew-

drop or pattering raindrop, upon the thirsty soil. This is the history of every raindrop that ever flowed through earth's rivers or fertilized earth's soil. Thus for unnumbered ages sunlight and air have worked together as true yokefellows in gathering up old ocean's treasures and scattering them over the land, in order that it may "bring forth and bud, that it may give seed to the sower, and bread to the eater." Now, is all this machinery an accident? Is it by accident that the sunbeam possesses the power to cut gravitation's cord in twain and lift the pearly drop into the air? Is it by accident that each zephyr carries upon his back a saddle in which the vaporous, ocean-

born drop may ride? Is it by accident that all the myriads of raindrop-ridden zephyrs move as gently as well-trained war steeds until they hear the cry of a thirsty soil beneath them, and then, like so many wicked mules, toss their riders in a twinkling? Is there no contrivance, no design, in all this? If not, where will you find design? Did any machine of man's devising ever work so perfectly? If the steam engine had a builder—an intelligent mind back of it to contrive its various parts and correlate them into one harmonious and wonder-working whole—so did earth's machinery for irrigating its soil.

We might consider hundreds—

yea, thousands—of other correlations which, equally with those already considered, furnish incontrovertible evidences of design; but these must suffice. What, then, is the conclusion that reason forces upon us in regard to the origin of the cosmos? An infidel once said to an Arab: “How do you know that there is a God? You never saw him.” The Arab replied: “How do I know that a camel passed by my tent door last night? I did not see him pass. Nevertheless I know that he did pass, because when I went to my tent door this morning and looked out I saw his footprints in the sand. In like manner, when I contemplate all the beauties and utilities of

nature, these are to me the foot-prints of a power that is super-human, a power that is divine.”

The Arab was right.

If so simple a structure as a house, a watch, or a steam engine demands an intelligent mind as its builder, how much more the material universe! Contemplate the magnificent spectacle—ten thousand times ten million worlds whirling upon their axes and wheeling along their orbits with lightninglike velocity, and continuing their flight from age to age, I might almost say from eternity to eternity, no one ever deviating the ten-thousandth part of an inch from its appointed pathway; think of all the myriads of

forms of life that inhabit each world, and of all the multifarious adaptations of each form of life to its environments; I say, think of all this, and then tell me: What is the origin of the cosmos? Is all this stupendous mechanism the work of chance, or the product of mere material forces, blind and unintelligent? Did all this order and beauty and harmony, all these countless myriads of adjustments, correlations, and adaptations, come into being without an intelligent mind back of them to plan, to contrive, and to bring to pass? Perish the thought. Reason must have a God. Philosophy, no less than revelation, postulates a Great First Cause, the author of all

we see. To deny it is to abandon all logic, to fly in the face of reason and common sense. Of all the pestilential isms that ever disgraced the annals of human thought, there is not one that is more worthy of universal, absolute, unmitigated scorn and contempt than atheistic materialism. I know it may be said that there are intelligent men who are atheists, but what of that? There are men, otherwise sound in body, who are blind; do we lose faith in our own eyesight because these poor unfortunate individuals cannot see? In like manner, if there are men, otherwise intelligent, who are by nature utterly incapacitated to reason correctly concerning cer-

tain subjects, or who are destitute of those intuitive powers and those moral sensibilities that belong to the rest of our race, must we therefore cease to exercise our reason or lose faith in our intuitions? Follow the *ignis fatuus* of materialism, and she will land you, not on the sunlit, flower-crowned peaks of everlasting truth, but amid the dismal fogs and perilous quagmires of universal skepticism. The ceaseless ongoing of nature's machinery through all the countless cycles of bygone time can be accounted for at reason's bar only by the ubiquitous presence of a living personality that is absolutely unlimited in all his attributes. The man who prefers

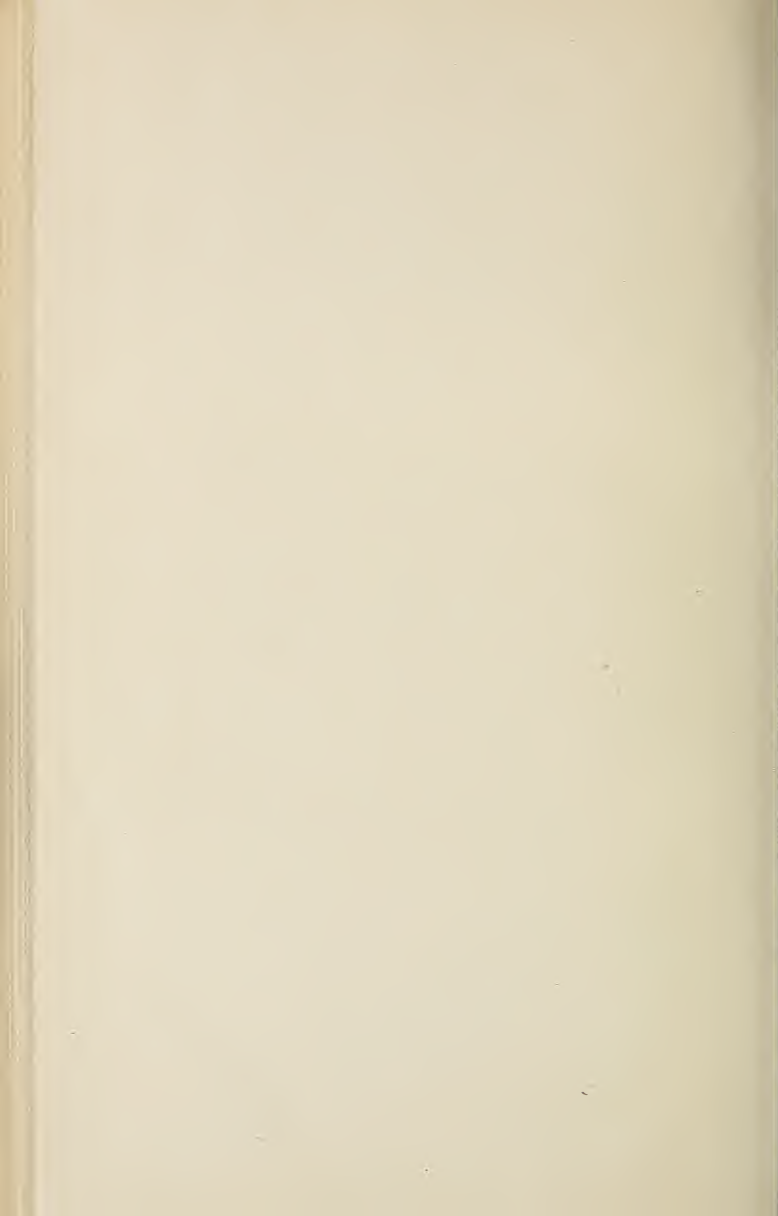


to attribute the mechanism of the universe to a blind, insensate force rather than to a living, personal God, is a fit companion only for those stolid Hebrews who bowed the knee to the dead image of an ugly calf at the very moment when Sinai's quaking, cloud-capped form and awful, unearthly thunders were proclaiming the immediate presence of the great majesty of heaven and earth. O, infidel! infidel! spend thy life, if thou wilt, in gathering together the cast-off ornaments of pagan philosophy, mold them into the shape of an ugly calf, dignify that calf with the high-sounding title "Natural Forces," write its past history, and prophesy its future in the most gorgeous

rhetoric that twentieth century civilization can furnish; worship this calf of thy own making to thy heart's content; make of thyself, if thou wilt, a missionary to propagate this calf worship—but thinkest thou, O prince of simpletons, that the world will heed thee? No; ten thousand times no! The intellect of this heaven-favored age will bow the knee only at the shrine of a living, personal God; for nature brings us face to face with a being whose presence is commensurate with space and whose existence is coeval with eternity; a being whose capacious mind had planned the universe in all its multitudinous parts and relations countless millions of ages

before the first atom of chaotic matter came forth from the womb of primeval nothingness. Every sun and star and galaxy proclaims its origin in a mind that is infinite in all its attributes.

“What though no real voice, nor sound,  
Amid the radiant orbs be found?  
In reason's ear they all rejoice,  
And utter forth a glorious voice,  
Forever singing as they shine:  
The hand that made us is divine.’”





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